The Milroy Lectures

ON

PUBLIC HEALTH AND HOUSING:

THE INFLUENCE OF THE DWELLING UPON HEALTH IN RELATION TO THE CHANGING STYLE OF HABITATION.

Delivered before the Royal College of Physicians of London,

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LECTURE I.[1]

Delivered on Feb. 28th, 1901.

INTRODUCTORY.

MR. PRESIDENT AND GENTLEMEN,—The subject I propose to submit to your attention presented some difficulty in framing a short title. My object is to consider the influence of the dwelling upon health in relation to the rapidly changing style of habitation, and might perhaps briefly be described as "public health and housing." It is patent to all, especially in the metropolis, that the growth and pressure of population is altering the mode of living and the exclusiveness of the house of former days is giving way to a closer association of habitations. Amongst the affluent and middle classes mansions are now often shared by families; flats, with and without commissariat departments, are springing up on all sides; boarding-houses and residential clubs are increasing in number; and hotel life has become fashionable. Amongst the working and poorer classes existing houses are being more and more sub-divided into tenements, flats of a small kind are erected in increasing numbers, poor men's hotels or cubicle lodging-houses are introduced and family lodging-houses or boarding-houses for the poor are coming upon the scene. The new conditions to which dwelling-houses are now being subjected are becoming increasingly important; more especially does this apply to the dwellings of the working and poorer classes.

The overpowering predominance of the housing question upon the health and vigour of the people is reflected in the fact that in London alone, at the census of 1891, of a population of four and a quarter millions, no less than two and a third millions, over one-half of the community, lived in small dwellings of from one to four rooms. The public health is influenced, not only by the overcrowding and misusage of houses, but also by the construction and arrangement of dwellings, and both are equally important.

It is remarkable that the most serious public health problem now confronting us at the end of the Victorian reign, the most prosperous period of English history, was also the most serious public health problem met with towards the end of the Elizabethan reign 300 years earlier and the next most prosperous period of our history. In each period the cause and effect have been the same. Increased prosperity acts as a stimulus to the growth of towns to such a degree that the crowding of population into cubic space and of houses upon square space becomes a danger to the public health and well-being of the community. In the Acts of the Privy Council, printed and published a year ago, will be found[2] a series of letters addressed in 1590 to the Lord Mayor of London, the Master of the Rolls, and others, commanding them to enforce the Royal proclamation of 1580 and a subsequent statute against the excess of new buildings being erected, the sub-dividing of habitations into several dwellings, and the taking in of inmates "whereby groweth infections of deadly sickness," and "the pestering of many families in one small house," and the "City hath been largely increased to the decrease of other towns, boroughs, and villages within the realm." By statute in 1593 it was provided that no new buildings, except for the better classes, were to be erected within three miles of London and Westminster, and no existing buildings were to be sub-divided, and in 1602 by proclamation newly-built houses were ordered to be demolished. But Stow tells us that little was done and small effect followed. In fact, the disease had not been diagnosed and the proper remedies had not been applied.

It is now no longer resented that the growth of a city should proceed by the influx of population from the country towards the centre, and it is now recognised that the expansion of commercial and professional activity in the city is ever driving the resident population away from the centre towards the periphery,[3] tending to cause closer and closer compression of the people, enhancing the value of the land, increasing the difficulty of the bulk of the population to find room, raising the rental of houses, and reducing the provision of accommodation and accessories in dwellings, and all that this connotes, to the smallest proportions. This is the malady; the remedies prescribed have been numerous and many interests have to be reconciled. I propose to regard the malady and the remedies from the point of view of health and the bodily vigour necessary to carry on the life of our working population.

We are becoming more and more town-bred, and the stamina, energy, and health of the population must be maintained. From time to time it has been said that the housing question is a simple one and that the remedy merely requires that the necessary dwelling accommodation should be defined and enforced. Those familiar with the subject recognise that this is begging the whole question, as the dwelling accommodation necessary is the very thing that all deep thinkers and earnest investigators have been endeavouring to find, and the more they inquire into and work upon the subject the more complex they find are the requirements and the more numerous the points of view from which they have to be regarded—health, construction, economics, and so many other factors governing the question.

Statute already provides that every person in a workshop or factory is entitled to 250 cubic feet of air space and 400 cubic feet during overtime. Although there is no similar statutory definition of overcrowding applicable to dwellings by-laws provide for at least 300 cubic feet of space per head in common lodging-houses and 300 or 400 cubic feet in houses let in lodgings or tenement houses when registered. These by-laws also provide for one w.c. for every 12 persons (in London this is statutory for all houses), the use of a refuse receptacle, of water, and of drainage. Further, there are by-laws and regulations as to drainage, water-supply, and buildings.

Without accepting these provisions as ideal it is evident that legislation has provided some kind of minimum. It is the altered conditions of present-day life that require to be reconsidered and the standards correspondingly altered so as to rest upon a basis more in consonance with physiological requirements rather than the mere packing together of human beings.

Previously to and during the major part of the Victorian period each dwelling-house was constructed to suit the needs of a particular class of family—the one- or two-storied cottage for the poorer classes, the six-, eight-, or 10-roomed house for the middle classes, and mansions for the wealthy. The increased prosperity and the increased flow of population into towns during the latter Victorian period led to such a concentration of population that under the increased pressure cottages and smaller houses became insanitary areas, are fast disappearing, and are being reconstructed in flats; terrace houses are being more and more subdivided and sublet in smaller dwellings; and the largest houses and mansions are being altered in construction or reconstructed for other usage.

In the new century London especially will continue to respond still more rapidly to the pressure and will undoubtedly become largely a city of houses in flats or floors of separate dwellings. It is well for public health to recognise this betimes and to ascertain the conditions that will make for deterioration of health in order that they may be avoided both in construction and usage. If the poorer classes are housed in such a manner as to deteriorate health other classes must also suffer, both directly and indirectly, so that the mode and effects of housing become matters of vital interest to all classes. The medical profession appreciate this probably more than any other body of the community.

My matter divides itself naturally into three portions

[1] Lectures II. and III. will be delivered on March 5th and 7th, 1901, respectively.

[2] Acts of the Privy Council (printed edition), vol. xix., pp. 188, 278, 324, 348. See extracts appended hereto.

[3] See Conference on the Housing of the Working Classes, 1900, Transactions of the Sanitary Institute. Discourse by the writer.

(1) the ascertained effects upon health of certain conditions of habitation; (2) construction and misconstruction; and (3) usage and misusage; and under these heads I propose to deal with the subject.

I.—THE ASCERTAINED EFFECTS UPON HEALTH OF CERTAIN CONDITIONS OF HABITATION.

The Effects of Density of Population.

Density of population is usually stated as density upon area, per square mile or per acre, or as density in cubic space per house or per room. The square measures are definite, but the cubic measures vary, within limits, according to the size of the houses or rooms. It may be assumed that beyond a certain point increasing density of population upon area, in the absence of hygienic measures, would result in increasing mortality, and that in proportion to the application of these measures the mortality would diminish. If the population were distributed equally upon the land measurement over large areas would be more reliable, but when it is mainly aggregated in large towns this measurement gives the mean of urban and rural conditions.

Density upon Square Space.

Density per square kilometre.—As illustrative of this demographic method of stating the effects of density upon nations the following figures may be quoted:—

TABLE I.—*Density of Population and Mortality in 1886.*[4]

Countries.	Inhabitants per square kilometre.	Births per 1000 inhabitants.	Deaths per 1000 inhabitants.
Norway	6	30·9	16·1
Sweden	11	29·6	16·6
Denmark	18	30·9	16·1
France	72	23·9	22·6
Germany	86	37·1	26·2
Italy	105	36·4	28·3
England and Wales (1886)	182	31·8	19·5
Lancashire (1886)	247	33·7	21·9

Density per square mile.—The late Dr. Farr[5] estimated that the mortality of districts was nearly as the sixth root of the density of the inhabitants—subsequently amended to slightly over the eighth root—and he framed this table to illustrate his later formula:—

TABLE II.—*Annual Rate of Mortality per 1000 for the 10 years 1861-70 in Seven Groups of Districts of England and Wales (exclusive of London) and the Mortality deduced from the Densities of Population in those Groups.*

Number of group.	Number of districts in each group.	Range of mortality.	Density. Persons to a square mile.	Observed mortality.	Calculated mortality.
England and Wales (exclusive of London) ...	593	15-39	315	22·00	20·41
I.	53	15-17	166	16·75	18·90
II.	345	18-20	186	19·16	19·16
III.	137	21-23	379	21·88	20·87
IV.	47	24-26	1718	24·90	25·02
V.	9	27-30	4499	28·08	28·08
VI.	(Manchester.)	32	12,357	32·49	37·70
VII.	(Liverpool.)	39	68,823	38·62	36·74

That death-rates are not determined simply by density of population over large areas was shown by Dr. Ogle[6] in a table relating to the decennium 1871-80, part of which is reproduced below, and in which it was also shown that any regular progressive effect of density upon mortality did not become uniform until the population approached accumulation, so as to be measurable by persons per acre rather than per square mile.

Pursuing the same subject, Dr. Tatham[7] in tables relating to the decennium 1881-90, part of which is also reproduced below, has shown that the relationship of density and mortality is too complex to admit of being expressed by a formula, such as Dr. Farr's, that when death-rates corrected for age and sex distribution are used the mortality appears to increase in more regular progression with increase of density, and that improved sanitation has lowered the ratio of mortality to density.

TABLE III.

1871-80			1881-90	
Persons per square mile.	Crude annual death-rate.	Acres to a person.	Persons per square mile.	Corrected annual death-rate.
194	18·53	3·30	139	12·70
200	15·60	3·20	149	13·45
211	17·58	3·04	187	14·48
217	19·48	2·94	214	15·41
253	14·43	2·53	307	16·47
258	16·63	2·48	435	17·35
458	20·56	1·40	662	18·55
677	21·64	0·95	1281	19·39
1301	22·55	0·49	1603	20·43
1819	23·54	0·35	2437	21·47
2166	24·41	0·30	3299	22·50
2819	25·54	0·23	5329	23·41
2944	26·26	0·22	4295	24·51
6144	30·23	0·10	6722	26·22
—	—	—	19584	33·00

It is obvious from the above table and the preceding that any formula would require an alteration and progressive increase in the root of the density to measure the mortality and keep pace with the progress of sanitation from decennium to decennium. Compare the following figures of density and mortality in the three preceding tables: 1718, 24·9; 1819, 23·5; and 1803, 26·4. The tables not only show in relation to density a progressive decrease of mortality both in the more and the less populated districts, but also that in the more populated districts or towns the decrease is relatively greater than in the country. Compare also the table in the Registrar-General's annual reports of the mortality in town and country districts through a long series of years. This may be attributed to improved domestic and municipal sanitation, but factory legislation has also contributed its quota, occupation being an important factor in the mortality of adults, and especially male adults.

In the Decennial Supplement to the Fifty-fifth Annual Report of the Registrar-General for the years 1881-90 Dr. Tatham compared the mortality of occupied males over 15 years of age in London, in industrial districts, and in agricultural districts, embracing more than half the occupied males in England and Wales in these three sections, and he showed in the following table that each age-group the highest death-rate occurs in the industrial and the lowest in the agricultural districts, London occupying an intermediate position:—

TABLE IV.

—	15	20	25	35	45	55	65 and upwards.
All occupied males	100	100	100	100	100	100	100
Occupied males (London)	108	100	112	125	123	120	108
Occupied males, industrial districts	120	109	119	128	135	137	118
Occupied males, agricultural districts	82	92	82	72	67	71	92

[4] The foreign density figures are taken from the article upon demography by M. Jacques Bertillon in the Encyclopédie d'Hygiène of Dr. Jules Rochard, vol. i., p. 125; the birth- and death-rates and also the English densities from the Annual Report of the Registrar-General.

[5] Supplements to the fifth (1843) and to the thirty-fifth (1873) Annual Reports of the Registrar-General.

[6] Supplement to Forty-fifth (1885) Annual Report of the Registrar-General.

[7] Supplement to Fifty-fifth (1896) Annual Report of the Registrar-General.

Of course, in spite of improved conditions of sanitation and occupation, there will always remain the difference between the air of the country and the town.

It may be concluded that the statistics extending over large areas and calculated per square mile do not form any standard of the health of individual districts or parts of districts subject to very variable amounts of provision for sanitary requirements, especially land drainage, sewerage, and water-supply, and consisting of populations also varying considerably in age, sex, and occupation. With regard to density over smaller areas, as the populations, whether of rural or of urban districts, are mainly aggregated in villages, towns, and cities, it follows that better results are obtained by comparing the statistics of these conglomerations. But even towns differ so greatly in the amount of open spaces and vacant land that the density ratio is not generally a reliable measure of comparison, even when the conditions of water-supply, sewerage, and refuse removal are similar. It is in constant record that urban mortality is highest in districts towards the centre of a city and lower towards the periphery, is most marked in children under five years, and in diseases affecting the respiratory organs. London furnishes ample statistics establishing this in the Registrar-General's returns. The results of medical observations have also placed on record the effects of towns in lowering vitality and energy, enfeebling health, impairing nutrition, and diminishing resistance to disease.

Density per acre.—When particular areas of towns are taken the figures become of greater utility and for the purpose of showing and comparing the effects of density combined with similar insanitary conditions the principal statistical facts with regard to the Boundary-street area, Bethnal Green,[8] and the Churchway area, Somers Town, St. Pancras, are compared in the following table with London as a whole:—

TABLE V.

—	Boundary-street area.			London.	Churchway area.			
	Period.	Boundary-street area.	St. Matthew, Bethnal Green.		Period.	Churchway area.	Somers Town.	St. Pancras.
Area in acres...	1889-90	15	755	77410	1888-90	1¼	181	2672
Density per acre	,,	373	168	58	,,	446	183	88
Birth-rate per 1000 population	1887-90	44·6	37·6	30·3	,,	26·8	33·9	30·1
Death-rate under one year per 1000 births	,,	252	159	151	,,	393	172	153
Total death-rate per 1000 population...	1888-90	39·3	22·5	18·9	,,	37·4	23·1	19·1
*Zymotic death-rate ...	,,	9·8	3·8	2·6	,,	5·0	3·2	2·5
†Tubercular death-rate ...	,,	4·4	2·7	2·7	,,	6·7	3·6	2·8
‡Respiratory death-rate ...	,,	12·0	5·6	4·0	,,	11·7	5·5	4·1

* *Zymotic diseases.*—Small-pox, measles, scarlet fever, diphtheria, whooping-cough, typhus, enteric, and continued fevers, diarrhœa, and cholera.

† *Tubercular diseases.*—Phthisis, tubercular meningitis, tabes mesenterica, rickets, scrofula, and other forms of tuberculosis.

‡ *Respiratory diseases.*—Bronchitis, pneumonia, pleurisy, asthma, lung disease, laryngitis, and non-membranous croup.

An unhealthy or insanitary area embraces certain main objects of consideration—the site, the relationship of the houses to each other, the houses themselves, and the class of inmates. Mere density alone of square space is insufficient to produce all the results seen in the preceding table, as shown by the dense population housed on the areas of some prisons, reformatories, and other public institutions. The same applies to large blocks of artisans' dwellings, which will be considered later; in these the relationships of the houses to each other is immensely improved, and the inmates are a picked class.

These comparative figures show that with the increasing density on square space there is an increasing general and special mortality in insanitary areas. The general mortality increases at all ages but particularly under one year. The special mortality shows the greatest increase amongst infectious diseases, the next greatest amongst tuberculous diseases, and the next amongst respiratory diseases. If all infectious cases be promptly removed to hospital and disinfection and cleanliness be enforced the increases tend to take place in the reverse order, the respiratory diseases first, and the infectious diseases third, the tuberculous still remaining second, being largely influenced by pulmonary tuberculosis. This is exactly what *a priori* might be expected, increased density in the same average size of house, lower vitality of the occupants, enhanced predisposition to diseases produced or conveyed aerially. In reference to this aerial influence Dr. Ogle pointed out[9] that if a series of industries be arranged in the order of the purity of the air breathed, apart from dusty occupations, the order will also be that of the mortality from diseases of the respiratory organs together with phthisis.

TABLE VI.—*Comparative Mortality of Males over 15 Years of Age Working in Air of Different Degrees of Purity from Diseases of the Respiratory Organs and Phthisis, the Mortality of all Males over 15 Years being taken as 1000.*

Industries.	Diseases of respiratory organs.	Phthisis.	Total.
Fishermen	90	108	198
Agriculturists...	122	115	237
Grocers	116	167	283
Drapers	129	301	430
Tailors	186	285	471
Printers	116	461	627

These results show the effects of fresh and foul air.

Compared in another manner phthisis shows its dependence upon indoor conditions. In England previously to 1865 the phthisis death-rate was greater among females than among males, the difference gradually diminishing until the mortality among each sex was equal. Since 1866 the mortality has continued to diminish in both sexes, but in a larger proportion amongst females and males. The male rate being taken at 1000 the female rate in successive decennia and onwards has been 1076 (1851-60), 1006 (1861-70) 918 (1871-80), 871 (1881-90), 802 (1891), 813 (1892), 797 (1893), 779 (1894), 795 (1895), 767 (1896), 758 (1897), and 747 (1898). This greater proportionate diminution in the phthisis mortality amongst females, the more indoor of the two sexes, is significant of the improvement of dwellings and more so when it is realised that the greatest diminution has taken place between the ages of 15 and 45 years, the child-bearing and the child-rearing period, when the woman is most indoor. Dr. Arthur Ransome in his researches on tuberculosis[10] has also shown that in country towns where the men are chiefly occupied out of doors and the women indoors the death-rates from phthisis of females exceed those of males, and that in manufacturing towns where the men are mostly attracted to indoor employments the excess is upon the male sex.

Density in Cubic Space.

Upon square space, as we have seen, we may have increasing density due to the crowding of cities with towns, of towns with quarters, of quarters with street blocks, and of street blocks with houses. It would not be wise to conclude that density upon square space is a thing to be ignored or to be belittled to the extent of minimising the immense value of separating towns or boroughs from each other by parks and commons, quarters by squares and gardens, street-blocks by broad streets and avenues, and houses by sufficient rear-spaces. The proportionate amount of open square space to the covered superficial area of towns and quarters has not received any exact estimation. The width of streets

[8] Annual Report for 1890, Dr. G. P. Bate, medical officer of health of St. Matthew, Bethnal Green.

[9] Supplement to the Forty-fifth Annual Report of the Registrar-General, 1885.

[10] Weber Parkes Prize Essay, 1897.

and size of rear-spaces, both of great influence upon health as shown by large insanitary areas, will be considered later.

Density in cubic square deals with street blocks that may be crowded with houses, houses with dwellings, dwellings with rooms, and rooms with persons. The first three are questions of structure embracing the size and disposition of rooms, dwellings, houses, and street blocks. On the other hand, the crowding of persons into these is a question of *usage* upon which some statistics are available.

Persons per house.—The varying size of houses and the greater variation introduced by the modern "flat" method of construction has destroyed any value that comparative statistics as to the number of persons per house may have possessed. This applies particularly to London and some other large cities, and therefore we must fall back upon old and well-known statistics.

That disease depending solely upon personal infection prevails in proportion to the increased number of inmates in a house is demonstrated by the following table of typhus mortality in Berlin in 1880[11] in proportion to density of population in houses:—

TABLE VII.

Number of deaths from typhus.	Number of city districts.	Mean number of inmates of houses.
0	33	49·9
1	29	62·7
2	51	64·5
3	22	74·4
4	18	77·1
5	5	77·4
6-9	8	91·5
10-13	2	98·5

We know that pulmonary phthisis is most prevalent in large towns, in the most densely built parts of a town, and in the most densely populated areas of those parts. In dwelling-houses the effects of crowding received the clearest exposition in the army medical reports and inquiries relating to barracks. The mortality from phthisis in the British army was:[12] from 1830 to 1846, 7·66 per 1000 of strength; from 1859 to 1866, 3·1 per 1000; from 1867 to 1871, 2·6 per 1000; from 1872 to 1880, 2·3 per 1000; from 1879 to 1884, 2·08 per 1000; from 1886 to 1887, 1·47 per 1000; and in 1888, 1·23 per 1000.

It was in 1858, the period when the great fall in mortality took place, that the celebrated report of the Royal Commission on the Sanitary Condition of the Army was issued. The mortality from lung diseases was found to vary greatly in four branches of the army, namely:—

TABLE VIII.

——	1837-46, 10 years.	1864-70, 7 years.
Household cavalry	6·28	3·76
Cavalry of the line	5·65	1·41
Foot Guards	11·9	2·30
Infantry	7·75	2·12

The only decided difference between these various arms was the condition of overcrowding in barracks, and the only decided difference made between the earlier and the later periods was the increased cubic space per head. The same prevalence of lung diseases was found in most of the European armies and particularly in those portions stationed in large cities.

Persons per dwelling.—Dr. J. B. Russell has shown[13] that a diminution of the size of dwellings tends to correspond with an increase in the mortality, particularly when accompanied by an increase in the number of persons per room, and that the progress-increase of mortality coincides with the progressive increase of the percentage of population living in dwellings of one room, as shown by the following table:—

TABLE IX.—*Showing the Relation of the Death-rate to Dwelling Accommodation in the Eight Principal Towns of Scotland.*

Locality.	Death-rate 1871-1880.	Persons per acre, 1881.	Rooms per dwelling.	Persons per dwelling.	Percentage of population living in dwellings of—				
					One room.	Two rooms.	Three rooms.	Four rooms.	Five or more rooms.
Aberdeen	21·17	18	3·42	1·511	13·6	38·3	20·3	9·1	18·7
Leith ...	22·5	43	2·98	1·671	14·2	43·3	18·3	9·0	15·2
Perth ...	22·6	7	4·96	1·312	10·0	34·3	19·3	10·7	25·7
Edinburgh	23·2	55	4·19	1·320	16·8	31·6	15·4	8·9	27·3
Dundee ...	25·7	42	2·85	1·870	16·9	48·1	14·7	6·2	14·1
Greenock	27·4	46	2·64	1·907	15·4	47·3	19·7	5·7	12·0
Paisley ...	27·8	16	2·42	1·984	23·0	44·1	14·7	6·8	11·4
Glasgow ...	28·6	84	2·34	2·054	24·7	44·7	16·0	6·1	8·5

The towns fall into two well-marked sets of four, the four upper with death-rates below 24 per 1000 and dwellings of from three to five rooms, the four lower with death-rates above 25 per 1000 and dwellings of less than three rooms, and in this group the death-rate rises *pari passu* with the diminution in the size of the average dwelling.

Dr. Anderson, the medical officer of Dundee, found in 1884 in that city that the mortality in dwellings of one room was 21·4 per 1000, of two rooms 18·8, of three rooms 17·2, and of four rooms and upwards 12·3 per 1000, and as deaths in workhouses, hospitals, and other institutions were omitted the true death-rate of the smaller dwellings would be relatively higher still, as the general death-rate of Dundee was 20·7 per 1000. Dr. J. B. Russell again by detailed inquiry also worked out the mortality from various causes, and the mortality from all causes in three classes of dwellings, small, medium, and large, in Glasgow for the year 1885, and the results are set out in the following table:—

TABLE X.—*Death-rates from Various Causes in Various Sized Dwellings in Glasgow in 1885.*[14]

Causes of death.	Dwellings of 1 and 2 rooms.	Dwellings of 3 and 4 rooms.	Dwellings of 5 rooms and upwards.
Zymotic diseases (including diarrhœa)	4·78	2·46	1·14
Acute diseases of the lungs (including consumption) ...	9·85	6·89	3·28
Nervous diseases and diseases of nutrition of children... ...	4·80	2·35	0·91
Accidents and syphilis in children	0·32	0·11	—
Miscellaneous unclassified diseases...	7·99	7·64	5·90
Total (all causes)	27·74	19·45	11·23

Taking the death-rates in the large dwellings as the standard the death-rate from zymotic diseases was two-fold greater in the medium and four-fold in the small; from lung diseases two-fold greater in the medium and three-fold in the small; and from diseases of nutrition in children under five years of age (convulsions and other nerve affections, atrophy, wasting, and premature birth) over two and a half-fold greater in medium and over five-fold greater in small dwellings of one and two rooms.

[11] Handbuch der Hygiene, Dr. Theodor Weyl, vol. iv., p. 9; Dr. A. Oldendorff.
[12] Parkes's Practical Hygiene, eighth edition, p. 584.
[13] Vital Statistics of the City of Glasgow, Part I., 1885.
[14] On the "Ticketed Houses" of Glasgow, Proceedings of the Philosophical Association of Glasgow, 1888-89.

A comparison between the increasing density of persons in dwellings and consumption in the Duchy of Baden is stated to have given the following results :—[15]

TABLE XI.

Per 1000 inmates.	Consumption mortality.
Group 1, 815 dwellings.	2·29 per 1000.
,, 2, 745 ,,	2·66 ,,
,, 3, 645 ,,	3·10 ,,
,, 4, 547 ,,	3·20 ,,
,, 5, 470 ,,	3·23 ,,

Persons per room.—In dealing with persons per room we have a basis of which the limits are not so wide, and although an international basis cannot be defined it may be said that in England the limits lie between 600 and 1400 cubic feet, but mainly between 800 and 1200, and average perhaps somewhere near 1000 cubic feet per room, in dwellings of less than five rooms. If one regards as overcrowded the dwellings in which the number or inhabitants exceeds double the number of rooms the following are the results in different cities of Europe :—[16]

TABLE XII.

City and date.	Population.	Overcrowded population.	Percentage overcrowded.	Mortality of whole city.
London (1891)	4,211,743	830,182	20 per cent.	21·4
Paris (1891)	2,424,705	331,976	14 ,,	21·6
Berlin (1885)	1,315,387	363 960	28 ,,	24·6
Vienna (1890)	1,364,548	387,000	28 ,,	24·6
Budapest (1891) ...	468,759	348,609	74 ,,	28·0
St. Petersburg (1890)	956,226	442,508	46 ,,	28·4

It is probable that the greater attention paid to the sanitation of houses in London as compared with Paris may in some measure account for the mortality not exceeding that of Paris, where the overcrowding was less in 1891 than in London at the same census date.

Dr. Korosi has disputed the interpretation placed upon the high percentage of overcrowding in Budapest and has pointed out that in Budapest[17] only rooms (*chambres*) in a dwelling (*logement*) were included, whereas in Paris compartments (*pièces*) such as lobbies, &c., in a suite or flat (*appartement*) were included, so that the percentage of overcrowding in Budapest should be considerably reduced and that of Paris somewhat increased. Dr. Jacques Bertillon has further pointed out that it is probable that the census enumeration of overcrowding in London is understated on account of the indefiniteness of the question as to rooms and of omissions to reply.[18]

Bearing these points in mind there is a remarkable coincidence between the gradation of overcrowding and of mortality in the above table, and, omitting the first and the last, this is particularly noticeable in the four great cities of the continent in which a similarity in the structure of buildings prevails. This is an important point bearing upon one of the disadvantages attending the continental mode of construction now coming into vogue in London. The mortality in Leipsic in 1875 and 1876 in proportion to density of persons per room according to the census of Dec. 1st, 1875, was as follows :—

TABLE XIII.

Streets with a mean population of—	Of 100 died yearly. Under one year.	Of 100 died yearly. Over five years.	All ages.
			Per cent.
0-1 inmates in each room.	11	1·0	1·1
1-1·6 ,, ,, ,,	25	1·1	1·8
1·6-2 ,, ,, ,,	26	1·1	2·0
2-2·5 ,, ,, ,,	34	1·4	2·6
2·5-3 ,, ,, ,,	33	1·3	2·7
Over 3 ,, ,, ,,	42	1·8	3·4

The figures show that when the number of inmates per room increased from one to three, that is, more than treble, the death rate at all ages also trebled and the death-rate under one year quadrupled.[19] The later experience of Glasgow[20] of the effect of room-density upon tuberculous diseases is that in each district of the city where the phthisis death-rate exceeds the mean, there also the room-density is in excess, and concurrently with the rise in the minimum cubic space per adult inmate to 460 cubic feet in 1890 and the increase in the minimum size of rooms by the Building Regulations Act of 1892, and with other factors, the phthisis death-rate is decreasing, but the rate of decrease is greater in districts which have a concurrent decrease in room-density.

With reference to overcrowding of air-space in dwelling-rooms in the metropolis Mr. Shirley Murphy has shown[21] that: 1. In London sanitary districts the death-rate from phthisis increases *pari passu* with the increase in the proportion of population living more than two in a room, in tenements of less than five rooms. 2. In these same districts, whilst overcrowding is associated with a tendency of the population to die from disease generally, this tendency is not manifested in the case of every disease. The mortality from cancer does not appear to have any relation whatever to overcrowding, that of diarrhœa and the principal zymotic diseases (excluding diarrhœa) is not particularly apparent, the mortality from tabes mesenterica shows a slight correspondence with the degree of overcrowding, that from tuberculous meningitis shows a little more, but the mortality from phthisis closely corresponds with the degree of density of persons per room. 3. In these same districts the increase of mortality from all causes in proportion to the overcrowding manifests itself at the same ages as the increase of mortality from phthisis—namely, 25, 35, 45.

It is recognised that the most important in the spread of pulmonary tuberculosis is predisposition, and predisposition can be acquired as well as be innate, and, further, that by hygienic measures the acquired predisposition and the innate disposition, and even the communicable entity of the disease itself, can be so controlled as to be kept in abeyance and even to be permanently subdued. It is further recognised that the conditions under which it may be acquired are residence in impure air, particularly such as is not renewed often enough, crowding of persons together, absence of sunlight, and dampness. In susceptibility to phthisis the power of resistance appears to be even more important than the power of infection, or, in other words, the prevention of loss of vitality or energy is most important.

Persons per cubic space.—In cities the average dwelling space of the inhabitants has a closer relationship to their health than any other condition of health which is capable of statistical expression.[22] Hence I have dwelt at some length upon density of population. If we could obtain a classification of only a portion of the population according to the amount of measured cubic space occupied and the causes of mortality we should, perhaps, be able to draw more definite and exact conclusions still.

Typhus fever was formerly very prevalent under conditions of gross overcrowding, and not only typhus fever but other

[15] Worin sind die Hauptursachen für die starke Verbreitung der Tuberkulose, &c., Aerztliche Mittheilungen, Baden g (1890), Kugler.

[16] Essai de Statistique comparée du Surpeuplement des Habitations à Paris et dans les grandes Capitales Européennes, par le Dr. Jacques Bertillon, Paris, Imprimerie Chaix, 1895.

[17] Comptes Rendus du 8me Congrès d'Hygiène et Démographie, Budapest, 1894.

[18] Des Logements surpeuplés à Paris en 1896, Société Française des Habitations à Bon Marché, Paris, 1898.

[19] Mittheilungen des Stat. Bur. der Stadt Leipsic, 12 Bd. (1877).

[20] The Distribution of Tuberculous Diseases in Glasgow, by Dr. A. K. Chalmers, medical officer of health, 1897.

[21] Annual Report of Medical Officer of Health of the London County Council, 1895.

[22] The House in Relation to Public Health, Dr. J. B. Russell, Transactions of the Insur. and Act Soc. Glasgow, 1887.

infectious diseases tend to diminish in prevalence with increase of cubic dwelling-space.

The phthisis death-rate shows a close relationship to density of persons in cubic space, and phthisis appears to stand almost in the same relationship to respiratory pollution as typhoid fever does to filth pollution. The respiratory diseases apart from phthisis are also influenced by impurities of the air and afford some measure of their effects, just as diarrhœal diseases, apart from typhoid fever, are regarded as bearing a relationship to impurities of the soil.

II.—EFFECTS UPON HEALTH OF CERTAIN KINDS OF HOUSES AND DWELLINGS.

It has already been mentioned that the crowding of cities with townships and townships with quarters are faults of municipal planning. The crowding of quarters with street-blocks and of street-blocks with buildings brings us to the consideration of streets and houses, with particular reference to the dwellings they contain and the health of the inmates.

Street blocks of houses.—This is a convenient term for the blocks of land isolated from each other by the surrounding streets and which are divided into the plots upon which the buildings stand. The effects of insufficiently separating street blocks from each other—that is, of allowing streets to be made too narrow—displays itself as one of the causes of unhealthiness of insanitary areas, the statistics of which have been considered, and that narrowing of streets directly tends to increase the mortality of a population will be seen from some statistics when considering back-to-back houses. Street blocks contain various kinds of buildings for commercial and for residential purposes and some types of the houses and dwellings have been subjected to statistical inquiry—for instance, back-to-back houses, stable-dwellings, tenement houses, cellar dwellings, and "flat" houses.

Back-to-back houses.—The results of statistical inquiries into the effects of back-to-back houses as constructed in the North of England vary in some minor points but agree in the main. The first statistics published were those of certain districts of Salford from 1879 to 1883 by Dr. Tatham, and they showed that parallel with the increase in the proportion of back-to-back houses in the groups selected the death-rates from all causes, pulmonary diseases, phthisis, and the principal zymotic diseases, and diarrhœa taken separately also progressively increased. Dr. Niven later confirmed these conclusions by statistics relating to the old township of Manchester from 1891 to 1894, and found further that with regard to age that in infancy and in advanced years there was also an excess of mortality in the back-to-back houses. The careful statistics of Mr. Herbert Jones from 1887 to 1892, comparing "through" houses in Saltaire with back-to-back houses in Shipley, showed that in the latter the mortality per 1000 from all causes was over one-third greater than in the former, from lung diseases nearly one-half greater, from zymotic diseases over one-half greater, and from diarrhœa alone over two-thirds greater. Collaterally they also furnished the required proof that in proportion to the disease in the width of streets the mortality progressively increases amongst a like population living under similar conditions. Dr. Arnold Evans also obtained confirmatory results of the increase of mortality with the increase in the population of back-to-back houses in the wards of Bradford in 1890–1892. The statistical results obtained by these medical officers of health are all set out in the table below, to which is also added the results I have obtained from the statistics of stable-dwellings, a class of dwellings similar in construction.

These statistics show that the mortality from all causes increases with the increase in the number of back-to-back houses and that the mortality from lung diseases, phthisis, the principal zymotic diseases, and diarrhœa alone increases in a similar manner, and that as the width of the streets diminishes the increase in the mortality from all causes, and these special causes, becomes more and more marked.

Stable-dwellings.—There are certain insanitary conditions that attract attention in mews. The houses are usually constructed in two storeys, with stables at ground level and dwellings over, and, like back-to-back houses, have only one front, the other three sides being generally without windows or doors and without back- or side-yards. The dwellings are frequently, in the absence of plaster ceilings and the presence of ill-fitting floor-boards, or by means of inside staircases, more or less open to the stables below. Beneath the dwelling-rooms are horses with their litter and manure, drain gullies (although these are generally properly trapped), and often water-closets under the stairs, sometimes unventilated. These conditions would incline one to expect that the mortality would indicate marked excess in the same causes of death as has been shown by observers in the case of back-to-back houses. And the more so because the roadways of the larger mews, formerly maintained by the owners, have been gradually left to the maintenance of public authorities, a course leading to the prohibition of placing manure and domestic refuse outside the stable-house on what has become public way and tending towards its retention under the dwelling-rooms.

In 1891 an inspection was made of the mews and stables in St. Pancras, and from the notes then made I have been able by means of careful compilation and revision to obtain

TABLE XIV.

		Population.	Mortality per 1000 population.				
			All causes.	Lung diseases excluding phthisis.	Phthisis.	Principal zymotic diseases.	Diarrhœa only.
Tatham,* Salford, 1879–83, Greengate and Regent-road sub-districts.	I. No back-to-back houses	8,713	27·5	6·6	2·8	4·5	1·42
	II. 23 per cent. back-to-back houses	11,749	29·2	7·8	3·3	4·8	1·55
	III. 56 " " "	11,406	30·5	7·9	3·6	6·2	2·12
Niven,† Manchester Old Township, 1891–94.	I. No back-to-back houses	54,264	28·1	5·7	2·7	4·9	1·54
	II. 18 per cent. back-to-back houses	8,773	29·1	7·5	2·7	4·9	1·85
	III. 50 " " "	4,380	37·3	8·6	4·5	7·6	2·83
	Selected districts. All houses	75,233	30·3	8·2	2·7	4·0	1·6
	Selected districts, back-to-back houses	9728	37·0	9·7	3·0	6·0	2·6
Herbert Jones,‡ Shipley, 1887–92.	Through houses (Saltaire)	4218	15·6	3·6	2·7	1·08	0·22
	Whole district of Shipley	16,000	16·2	4·0	2·3	1·7	0·22
	Back-to-back in 75 ft. streets	2200	18·1	4·9	2·8	1·3	0·22
	" " 45 ft. "	1245	22·5	5·7	4·1	1·8	0·4
	" " 30 ft. "	710	28·1	7·4	4·6	2·9	0·84
	" " total	4155	21·1	5·1	3·4	1·7	0·40
Arnold Evans,§ Bradford, 1890–92.	Six wards under 60 per cent. back-to-back	202,975	19·8	—	1·71	—	0·36
	Nine " over 60 " "		23·7	—	1·93	—	0·83
Sykes,‖ St. Pancras, 1890–92.	Stable-dwellings	2,766	27·4	8·0	2·28	4·8	1·66

* Joint Report upon Back-to-back Houses by Dr. Barry and Mr. P. Gordon Smith, F.R.I.B.A., Local Government Board, 1888. † Transactions of the Sanitary Institute, vol. xvi., 1895. ‡ Public Health, vol. v., 1892-93. § Transactions of the Epidemiological Society, vol. xv., 1895-96. ‖ In course of publication.

comparable returns of these premises. The number of adults and of children under 10 years living in each dwelling over the stables was also ascertained, so that an enumeration of the population was made in the same year as the census was taken. In conjunction with the census returns this renders it possible to compare the population under 10 years and 10 years and over living (1) in stable-dwellings, (2) in the whole of St. Pancras, and (3) in the whole of London. The deaths (corrected for public institutions) for the three years 1890, 1891, and 1892 were also extracted, and these also are comparable with the returns of St. Pancras and of London for the same three years. The superintendent registrar of St. Pancras, Mr. J. Stevens, has kindly extracted and supplied me with the number of births, and these, again, are similarly comparable. With the aid of these statistical bases and the kind assistance of Mr. S. M. Kaka, D.P.H., medical officer of health of Karachi, I have been able to prepare a series of tables that have been condensed into conveniently comparable compass and are attached hereto.

In examining the tables of population and mortality the first point that attracts attention is that in the stable-dwellings 34·9 per cent. of the population is under 10 years of age, compared with 21·6 per cent. in all St. Pancras and 22·7 in all London. The next thing is that the birth-rate is half as high again over stables as in the whole of St. Pancras and London. It is possible that this proportion is slightly exaggerated owing to the fact that whereas the population and the deaths in stable-dwellings were extracted for each dwelling, the births have been extracted in bulk for each mews, and a few houses not strictly part of the mews may have been included. On the other hand, this suggests that the death-rate of infants under one year per 1000 births, that stands at 193 in stable-dwellings as compared with 160 in St. Pancras and 157 in London, may be actually higher than it appears—possibly 200 or more per 1000 births. The fact remains that there is a high infantile mortality. The main causes of infantile deaths in stable-dwellings are the following, set out in table form and compared with St. Pancras and London:—

TABLE XV.—*Causes of Deaths under 10 years of age: mean of three years, 1890–91–92.*

Causes.	Mean number.	Stable-dwellings.		St. Pancras	London.	
		Death-rate per 1000 births.	Number.	Death-rate per 1000.	Number.	Death-rate per 1000.
Suffocation	1·6	12·3	48·0	6·8	1657·6	4·9
Bronchitis and pneumonia	8·0	61·9	210·3	29·9	3930·3	29·8
Measles and whooping-cough	1·6	12·3	81·3	11·5	1602·6	12·1
Diarrhœa	3·3	25·5	115·3	16·4	1857·0	14·1
Total of above ...	—	112·0	—	64·6	—	60·9

The total infantile mortality in stable-dwellings from these causes is nearly double that of St. Pancras and of London. Incidentally, compared with London in 1890–92, suffocation as a mode of death appears to have been more favoured in St. Pancras and most favoured in stable-dwellings. Measles and whooping-cough mortalities scarcely differ. Diarrhœa shows somewhat under a double death-rate, and bronchitis and pneumonia somewhat over a double death-rate, compared with St. Pancras and London.

The death-rate of infants under one year per 1000 of total population at all ages was in stable-dwellings 9·04, in St. Pancras 4·80, and in London 4·92, again showing a heavy infantile mortality, and the inference that a large proportion of the population consists of children. This is corroborated by the actual number of persons under 10 years of age compared with the number at 10 years and over, the proportions being, in stable-dwellings 100 to 186, in St. Pancras 100 to 361, and in London 100 to 341. The death-rate under 10 years of age in London is 38·7 per 1000 of population under 10 years, and 1 per 1000 higher in St. Pancras, and 2·3 per 1000 higher in stable-dwellings. Over 10 years of age per 1000 of population the mortality in London is 15·5, 1·6 higher in St. Pancras, and 4·6 higher in stable-dwellings.

In order to compare stable-dwellings with back-to-back houses the following table (XVI.) of mortality has been drawn.

Back-to-back houses show an excess in mortality from all causes, from pulmonary diseases, from phthisis, from the principal zymotic diseases, and from diarrhœa, taken separately. Stable-dwellings show an excess of mortality from the same causes, but not in the same proportion. The death-rate at all ages in the stable-dwellings is 5·4 above that of St. Pancras, and 7·4, or nearly one-third more, above that of London. That this is not mainly due to the high infantile mortality is seen from the fact that whereas the mortality under 10 years of age is 2·3 above that of London, the mortality of 10 years and over is 4·6 above that of London per 1000 of population living between the two respective age periods. The death-rate at all ages from the "principal zymotic diseases" is the same in St. Pancras and London—namely, 2·69 per 1000; but stable-dwellings show a rate 2·12 higher—namely, 4·81 per 1000. The diarrhœa death-rate, which appears as 0·62 per 1000 in London and 0·53 in St. Pancras, is three times as high in stable-dwellings—namely, 1·66 per 1000 population. Tuberculous diseases are 0·23 higher in St. Pancras than in London, and 0·20 higher in stable-dwellings than in St. Pancras, phthisis 0·20 and 0·11 higher per 1000 of population. One might expect higher results in back-to-back type of houses. Respiratory diseases show a high death-rate, 8·17, over stables, compared with 5·25 in St. Pancras and 4·93 in London. The rate is 3·24 higher than in London, but bronchitis and pneumonia alone show a still higher rate, approaching twice that of London. In the Registrar-General's last decennial report the mortality of cabmen and carmen from diseases of the respiratory system is given as 128 and 170 respectively, when 100 is taken as the standard of all occupied males, and the comparative figures for all engaged in various branches of transport service by road, rail, river, and sea is 147; but that the high rate in stable-dwellings is not due solely to occupation is shown by the high mortality from bronchitis and pneumonia amongst the home-dwelling infants. This is not due to poverty, as cabmen and carmen are not indigent as a class; the families of even the poorer are fairly cared for in food and clothing, and the better off are well fed and well clothed. If the last three double rows of

TABLE XVI.

—		Population.	All causes.	Pulmonary diseases excluding phthisis.	Phthisis.	Principal zymotic diseases.	Diarrhœa alone.	Under one year of age.
Tatham,* 1887–83.	Manchester, Greengates, 56 per cent. back-to-back ...	11,406	30·5	7·9	3·6	6·2	2·12	—
	Manchester, Regent-road, 50 per cent. back-to-back ...	4380	37·3	8·6	4·5	7·6	2·83	—
Niven,† 1891–94.	Manchester, Old Township, back-to-back...	9726	37·0	9·7	3·0	6·0	2·6	299·7
	Manchester, " all houses	75,253	30·3	8·2	2·7	4·0	1·6	279·1
Herbert Jones,‡ 1887–92.	Shipley, Back-to-back	4155	21·1	5·1	3·4	1·7	0·40	—
	Shipley, Saltaire, "through"	4218	15·6	3·6	2·7	1·1	0·22	—
Sykes, St. Pancras, 1890–92.	Stable-dwellings	2766	27·4	8·0	2·28	4·8	1·66	193·3
	St. Pancras...	234,379	22·0	4·8	2·17	2·7	0·53	160·0

* Joint Report of Dr. Barry and Mr. P. Gordon Smith, F.R.I.B.A., Local Government Board, 1888. † Transactions of the Sanitary Institute, vol. xvi., 1896, p. 254. ‡ Public Health, vol. v., 1892–93, p. 347.

figures are taken and the excess mortality in the groups of back-to-back houses and in stable-dwellings over the groups of the other houses with which they are respectively compared are set out in tabular form the proportionate differences become apparent:—

TABLE XVII.

Locality.	All causes.	Pulmonary diseases, excluding phthisis.	Phthisis.	Principal zymotic diseases.	Diarrhœa.	Under 1 year of age.
Manchester ...	6·7	1·5	0·3	2·0	1·0	20·6
Shipley	5·5	1·6	0·7	0·6	0·1	—
St. Pancras ...	5·4	3·2	0·1	2·1	1·1	33·3

It is seen at once that in stable-dwellings there is an excessive mortality from pulmonary diseases and in infantile mortality and a lesser excess from phthisis. The probability appears that the vicissitudes of temperature in the occupations of the adults and the construction of the homes of the infants in stable-dwellings are prominent factors in the causes of mortality. Some stables are draughty during cleaning time when the stable doors and loft doors are open. Some stable roofs have no ceilings below to equalise the temperature. Some also have skylights over the back dwelling-rooms, although seldom open, and there are air-bricks in the back walls of some stables. Yet they show a high zymotic death-rate per 1000 of population, the individual diseases appearing as follows:—

TABLE XVIII.

Locality.	Small-pox.	Scarlet fever.	Diphtheria.	Fevers.	Measles.	Whooping-cough.	Diarrhœa.	Total.
Stable-dwellings	—	0·22	1·19	—	0·72	0·94	1·66	4·81
St. Pancras	—	0·18	0·48	0·12	0·61	0·63	0·53	2·69
London	—	0·21	0·37	0·13	0·67	0·68	0·62	2·69

The death-rates are very high from diarrhœa and diphtheria

TABLE XIX.—POPULATIONS, BIRTH-RATES, AND DEATH-RATES AT SEVERAL AGES, MEAN OF THREE YEARS, 1890–91–92.

Localities.	Population.			Births.	Birth-rates.	Deaths under one year.	Infantile mortality per 1000 births.	Deaths.			Death-rates.		
	Under 10 years.	10 years and over.	Total.					Under 10 years.	10 years and over.	Total.	Under 10 per 1000 population.	10 and over per 1000 population.	At all ages for united population.
Stable-dwellings (enumerated 1891)	965	1,801	2,766	129·3	46·7	25	193·3	39·6	36·3	76·0	41·0	20·1	27·4
St. Pancras (census 1891) ...	50,771	183,608	234,379	7029·6	30·0	1124·3	160·0	2015·3	3153·3	5168·6	39·7	17·1	22·0
London (census 1891)	955,782	3,256,961	4,211,743	131,657	31·2	20,753	157·6	36,981	50,567	87,548	38·7	15·5	20·8

TABLE XX.—THE PRINCIPAL ZYMOTIC DISEASES: NUMBER OF DEATHS AND DEATH-RATE MEAN OF THREE YEARS, 1890–91–92.

Localities.	Small-pox.	Scarlet fever.	Diphtheria and membranous croup.	Typhus fever.	Enteric fever.	Continued fever.	Measles.	Whooping-cough.	Diarrhœa.	Total.	Death-rate.	Diarrhœa death-rate.
Stable-dwellings	—	0·6	3·3	—	—	—	2·0	2·6	4·6	13·3	4·81	1·66
St. Pancras	0·6	42·0	111·6	—	28·3	0·6	143·0	147·3	123·6	630·6	2·69	0·53
London	17·6	879·6	1554·3	10·0	533·6	31·6	2830·2	2876·3	2507·6	11341·3	2·69	0·62

TABLE XXI.—RESPIRATORY DISEASES: NUMBER OF DEATHS AND DEATH-RATE MEAN OF THREE YEARS 1890–91–92.

Localities.	Laryngitis.	Croup.	Emphysema, asthma.	Bronchitis.	Pneumonia.	Pleurisy.	Other diseases of respiratory system.	Total.	Death-rate from diseases of respiratory system.	Death-rate from bronchitis and pneumonia.
Stable-dwellings	—	—	—	17·6	4·6	—	0·3	22·6	8·17	8·06
St. Pancras	19·3	8·3	23·0	855·6	250·3	27·3	50·3	1232·0	5·25	4·72
London	216·3	382·3	577·0	12114·3	6324·6	343·6	851·3	20779·6	4·93	4·38

TABLE XXII.—TUBERCULOUS DISEASES AND SEPTIC DISEASES: NUMBER OF DEATHS AND DEATH-RATE MEAN OF THREE YEARS. 1890–91–92.

Localities.	Phthisis, pulmonary tuberculosis.	Tuberculous peritonitis, tabes mesenterica.	Tuberculous meningitis, acute hydrocephalus.	General tuberculosis. scrofula.	Total.	Death-rate from tuberculous diseases.	Death-rate from phthisis.	Septic diseases.				
								Puerperal fever.	Erysipelas	Pyæmia and septicæmia.	Total.	Death-rate.
Stable-dwellings	6·3	0·6	1·0	1·0	9·0	3·25	2·28	—	0·3	0·3	0·6	0·22
St. Pancras ...	509·3	76·0	59·6	70·6	715·6	3·05	2·17	7·6	8·3	7·3	23·3	0·10
London	8292·3	1332·0	1221·6	1029·0	11875·0	2·82	1·97	270·6	245·3	68·0	584·0	0·13

and high from whooping-cough, even when a number of unhealthy conditions are absent. For stables have no underground rooms or cellars and no ground floors below the level of the street and there is less liability to the rise of ground air under the dwelling-rooms and to the dampness of walls of the dwelling-rooms by capillarity.

The conclusions to be drawn are that the occupants of stable-dwellings have a high birth-rate and a high mortality under one year and at all ages and high death-rates from pulmonary diseases, both of infants and adults, and from the zymotic diseases, especially diarrhœa and diphtheria. These point to the effects of the vicissitudes of temperature affecting adults and unhealthy conditions at home affecting young children.

ON THE INFLUENCE OF OZONE ON THE VITALITY OF SOME PATHOGENIC AND OTHER BACTERIA.[1]

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THE influence of ozone on the vitality of bacteria is a matter which has received the attention of several investigators, but on reviewing the records of the results which have been arrived at it is obvious that such results have not always been consistent. We determined, therefore, to investigate this question anew, in the hope of being able to come to a definite conclusion. The matter seemed to us to be one of considerable importance, since if ozone were possessed of the bactericidal properties which have been attributed to it by more than one investigator the gas might prove of much value in solving one of the most unsatisfactory problems which have to be dealt with in the practice of modern sanitation—that is to say, the disinfection of rooms after the occurrence of infectious disease. Ozone can now be conveniently produced in large quantities, and, if efficient, would be admirably adapted to effect the purpose in view.

The question of the bactericidal action of ozone was especially brought into prominence by the classical work of Downes and Blunt, embodied in communications made to this society in 1877 and 1878.[2] Working with impure cultures of bacteria, these investigators showed that direct sunlight in the presence of atmospheric air was capable in some cases of preventing in greater or less degree, or in other cases of absolutely inhibiting, the growth of the particular bacteria experimented with; and that not only might growth be inhibited but that the bacteria themselves might be actually destroyed. Downes and Blunt further showed that so far as the destruction of bacteria is concerned the blue and violet rays of the spectrum are more effective than the red rays, that the interposition of a layer of water is sufficient to protect the bacteria to a certain extent, and that direct sunlight acting *in vacuo* may fail to destroy sporing bacteria.

Whilst this work of Downes and Blunt has been fully confirmed and amplified in certain directions by the work of others no satisfactory explanation has yet been arrived at as to exactly how it is that bacteria are destroyed under these conditions. The explanation that the result is a direct effect of the sun's rays—of heat—has been shown to be untenable; and it has therefore been assumed that the destruction is effected by chemical rather than by physical action—that it results from an active oxidation of the substance of the bacteria by ozone produced by the action of sunlight on atmospheric air. Others have regarded peroxide of hydrogen as the active agent.

Amongst the experiments which have been carried out in order to test this assumed bactericidal action of ozone we may particularly mention those of Chapuis,[3] Sonntag,[4] and Ohlmüller.[5] Chapuis filtered air through cotton-wool and then exposed plugs of the wool with the contained bacteria to the action of ozone. The plugs were afterwards incubated in a nutrient wort solution which remained sterile. Control plugs of the wool which had not been subjected to the action of the ozone gave rise to a free growth of bacteria when incubated in the same medium. Sonntag and Ohlmüller's experiments, on the other hand, seemed to show that ozone in the dry state had little or no action on bacteria but was capable of destroying them when passed through water containing them. Thus bacillus anthracis suspended in distilled water was destroyed after air containing 9·6 milligrammes of ozone per litre had been passed through the mixture for 10 minutes. A sporing culture of the same bacillus was killed by passing air containing 15·2 milligrammes of ozone per litre through the water for 10 minutes. If, however, organic matter, such as blood serum, were added to the water the results were different; and it seemed that under these latter conditions the most part of the ozone was expended in oxidation of the dead organic matter present, whilst the bacteria were little if at all affected.

Our experiments were planned with the view of ascertaining whether ozone applied in large quantities, either in a mixture with atmospheric air or with pure oxygen, has in reality a destructive influence on bacterial life, and especially whether it has any such influence under conditions which would enable it to be used for practical purposes of disinfection.

The experiments have included the testing of the action of ozone (1) on the vitality of certain pathogenic and saprophytic bacteria; and (2) on the virulence of one pathogenic species. For the purposes of the latter test we decided to test the action of the gas on bacillus tuberculosis, an organism which is known to be readily affected by the direct action of ordinary chemical agents and one which numerous experiments would lead us to believe is very susceptible to the action of direct sunlight (Koch,[6] Ransom and Delépine,[7] and Jousset).[8]

EXPERIMENT I.

In our first experiment culture tubes with "sloped" surface of nutrient agar or gelatin were inoculated with various bacteria; a mixture of atmospheric air and ozone was passed continuously over the inoculated surface for a period of at least four hours, commencing 24 hours after the tubes were inoculated. The tubes were then incubated at appropriate temperatures and the result compared with that obtained in control tubes which had been inoculated from the same stock cultures at the same time.

In detail the following was the procedure carried out. The culture tubes were of the ordinary 15 × 2 centimetre size, into the sides of which short pieces of 0·75 centimetre calibre glass tubing had been blown in such a way that they opened into the lumen of the culture tubes about three centimetres from the bottom and just above the lower level of the sloped nutrient surface and allowed the ozonised air to escape after passing over the bacteria. The culture tubes were closed at the upper end by a piece of cork through which passed a short length of the 0·75 centimetre tubing, which formed the inlet for the ozonised air. The inlet and outlet tubes were loosely plugged with cotton wool and by means of them and short lengths of indiarubber tubing the culture tubes could be connected up in series and sterile ozonised air drawn over the inoculated surfaces. Such culture tubes were inoculated with the following bacteria:—Glycerine-agar tubes: Nos. 1 to 6 with bacillus tuberculosis and Nos. 7 and 8 with bacillus mallei. Nutrient-agar tubes: Nos. 9 and 10 with bacillus diphtheriæ and Nos. 11 and 12 with bacillus anthracis (sporing). Nutrient-gelatin tubes: Nos. 13 and 14 with bacillus typhosus, Nos. 15 and 16 with micrococcus melitensis, and Nos. 17 and 18 with micrococcus candicans.

The tubes were then arranged in two series, those numbered from 1 to 12 being connected up in one series and those numbered from 13 to 18 in another. The two series of tubes were then placed in a room of about 900 cubic feet capacity and ozone was generated in the air of the room by means of four small "ozonisers," a three-inch spark Ruhmkorff coil and an accumulator battery being

[1] A paper read before the Royal Society on Feb. 14th, 1901.
[2] Proceedings of the Royal Society, vol. xxvi., p. 488; vol. xxviii., p. 199; and vol. xl., p. 14.
[3] Bulletin de la Société Chimique, 1881, tome xxxv., p. 290.
[4] Centralblatt für Bakteriologie, 1890, Erste Abteilung, Band viii., p. 773.
[5] Arbeiten aus dem Kaiserlichen Gesundheitsamte, 1892, Band viii., p. 229.
[6] Ueber Bacteriologische Forschung, introductory address, Tenth International Medical Congress, August 4th, 1890.
[7] Proceedings of the Royal Society, vol. lvi.
[8] Comptes Rendus de la Société de Biologie, 1900, tome lii., p. 884.

used. The "ozonisers" were kept working for four hours, during the whole of which time ozonised air was slowly aspirated through the tubes. At the end of four hours the arrangement of the tubes was altered; a fresh series, including those numbered from 3 to 12 and from 15 to 18, being connected up, and pure oxygen charged with ozone was forced through the tubes for a period of 30 minutes. During this half hour ozonised air was still being drawn through No. 13 and No. 14. The culture tubes were then incubated, No. 1 to No. 12 at 37° C., and No. 13 to No. 18 at 22° C., the respective control tubes being incubated with them. The result of the experiment was that in the case of two out of the seven species tested there seemed to have been some slight retardation of growth as the result of the exposure to the ozone; that is to say, in the case of one or both of the duplicate tubes containing bacillus mallei and bacillus diphtheriæ the growth of the experimental cultures seemed at first to be rather slower than it was in the corresponding control tubes. But at the end of eight days' incubation all difference between the experimental and control tubes had disappeared and growth was equal in both sets; and in further experiments this effect was not obvious. In the case of the other five species not the slightest effect could be observed as the result of the exposure. The experiment was carried out under conditions which, although they might approximate to those which would prevail in the actual use of ozone as an aerial disinfectant, were not adapted to test the action of ozone on bacteria apart from an important disturbing factor. The bacteria were submitted to the action of ozone in the presence of a large amount of dead organic matter, and it was quite conceivable that such an amount of the ozone might have been decomposed in the oxidation of the dead organic matter that but little had been left to exert any action on the living bacteria.[9]

EXPERIMENT II.

In this experiment we endeavoured to test the action of ozone on the bacteria in the absence—so far as we could insure the condition—of dead organic matter. The same culture tubes were used, but instead of inoculating agar or gelatin nutrient surfaces we inoculated small blocks of plaster-of-Paris from stock cultures of the various bacteria tested. These plaster-of-Paris blocks when inoculated were placed in the culture tubes and the inlet and outlet tubes were plugged with fine Italian asbestos fibre instead of with cotton-wool. And instead of passing the same current of ozone over a series of tubes in succession we connected each tube separately with a main feeding pipe with lateral branches, the respective tubes being held in contact by pieces of indiarubber tubing. Thus each culture tube had a fresh supply of ozone. Ozone was generated as before and passed over blocks inoculated from stock cultures of the following: (1) staphylococcus pyogenes aureus; (2) streptococcus pyogenes; (3) micrococcus melitensis; (4) Bacillus mallei; (5) bacillus diphtheriæ; (6) bacillus anthracis (from sporing culture); (7) bacillus typhosus; (8) bacillus coli communis; (9) bacillus pyocyaneus; (10) bacillus pneumoniæ (Friedländer); (11) bacillus prodigiosus; and (12) saccharomyces albicans.

Duplicate tubes were inoculated with each organism and a continuous current of air was pumped over the ozoniser, which was inclosed within a glass cylinder connected with the main feeding-tube and then through the culture-tubes for a period of 30 minutes. The actual amount of ozone used was not estimated, but iodide of potassium and starch paper held over the outlet tubes gave a positive reaction within 60 seconds of the commencement of the experiment. The small plaster-of-Paris blocks were then shaken up in tubes containing 3 cubic centimetres of nutrient broth, from the broth tubes loopfuls were transferred to other media, and the growth obtained after incubation compared with the growth on control tubes.

The results obtained on incubating the sub-cultures made it evident that none of the bacteria had been affected by the ozone in such a way as to impair either their capability of growth or in the case of the two chromogenic bacteria their function of pigment production. The pathogenic action of a broth sub-culture of bacillus mallei after the ozonisation was tested by intra-peritoneal inoculation of a male guinea-pig; an ordinary infection with characteristic lesions followed, the animal dying within 48 hours.

[9] We are indebted to Mr. Bridge, chemist, of Bournemouth, for assistance in the working of the ozonising apparatus used in carrying out this experiment.

EXPERIMENT III.

We now decided to subject the bacteria to a rather more severe test than had been involved in the two preceding experiments. The ozone was produced by passing oxygen under pressure from a cylinder over a powerful "ozoniser" inclosed within a glass cylinder, and then into the main feeding tube, as in the previous experiment. The current used was an alternating one direct from the street main. Small pieces of porcelain were, after inoculation with the following bacteria, placed in the culture tubes: (1) sarcina ventriculi; (2) micrococcus melitensis; (3) micrococcus candicans; (4) bacillus mallei; (5) bacillus diphtheriæ; (6) bacillus anthracis (from 24-hour old culture in broth, non-sporing); (7) bacillus anthracis (from old sporing culture on potato); (8) bacillus typhosus; (9) bacillus coli communis; (10) bacillus pyocyaneus; (11) bacillus pneumoniæ; and (12) bacillus prodigiosus.

Duplicate tubes of each species were used for the experiment, the first attempt to carry out which resulted in failure owing to the action of the ozone on the pieces of indiarubber tubing by which the branches of the main feeding-tube and the inlets into the culture tubes were held in contact. Before the mixture of ozone and oxygen had been passed into the series of culture tubes for 90 seconds every piece of indiarubber tubing was cut through as if with a knife. The joints were therefore made with pieces of bored cork and the experiment repeated. The mixture of ozone and oxygen was passed through the tubes at the rate of 1·5 litre per minute for a period of 30 minutes; the yield of ozone, as estimated by titration with $\frac{N}{10}$ iodide solution, amounted to 0·072 gramme per minute. The percentage amount of ozone was, therefore, about 2·4 by volume. At the end of 30 minutes the pieces of porcelain were dropped into tubes of nutrient broth and incubated. On comparison with the various controls it was obvious that the ozone had not affected the bacteria in such a way as to impair either their capability for growth or, in the case of the chromogenic organisms, their power of producing pigment. The broth sub-culture of bacillus anthracis (non-sporing) after 48 hours' incubation at 37° C. was tested on a white mouse and proved to be of normal virulence, 0·25 cubic centimetre of the broth culture injected into the peritoneal sac killing the animal within 24 hours in typical fashion.[10]

EXPERIMENT IV.

Although it seemed to have been conclusively proved by the experiments of Ohlmüller, already referred to, that ozone was capable of considerable bactericidal action when the organisms were suspended in certain fluids, we determined to carry out a single experiment, using milk as the medium. We used milk because we considered that it would, as containing a large quantity of organic matter, test the bactericidal action of the gas severely.

Five flasks, each containing 125 cubic centimetres of milk, were prepared as follows:—Flask 1 contained sterilised milk which had been inoculated with a culture of bacillus anthracis (sporing). Flask 2 contained sterilised milk which had been inoculated with a non-sposing culture of bacillus anthracis. Flask 3 contained ordinary fresh unsterilised milk, to which a quantity of a broth culture of bacillus prodigiosus had been added. Flask 4 contained ordinary fresh unsterilised milk. Flask 5 contained a sample of commercial "sterilised" milk which had "gone bad" owing to the presence in pure culture of an anaerobic, sporing, butyric acid forming bacillus. A current of oxygen containing the same proportion of ozone as that used in Experiment III. was passed through the milk in each of the flasks for a period of 20 minutes at the rate of 1·5 litres per minute. Loopfuls of milk were then taken from each flask, transferred to various culture media, and incubated under both aerobic and anaerobic conditions; the flasks with the bulk of the milk still remaining in them were also incubated.

In the result it was found that the contents of Flasks 1, 2, and 5 were sterile of bacteria. The milk used for Flask 3 and Flask 4 was taken from the same sample, and on incubation of the sub-cultures after ozonisation a growth of a mould-fungus was obtained from each flask; from Flask 3 a very free growth of the mould was obtained, but neither bacillus prodigiosus or any other bacterium; from Flask 4 a

[10] We are indebted to Mr. Wood Smith, F.I.C., for assistance in the working of the ozonising apparatus used in this experiment.

few colonies of a coccus were obtained in both aerobic and anaerobic cultures in addition to the mould which was present apparently in less quantity in the contents of Flask 4 than it was in the contents of Flask 3. In the case of the sub-cultures from Flask 3 the growth of the mould was very rapid and soon covered the surface of the medium, and so possibly checked the growth of the coccus which appeared on the sub-cultures from Flask 4, in which the mould growth was less abundant. A loopful of the milk used for Flask 3 and Flask 4 taken before ozonisation and smeared over nutrient agar gave, on incubation at 22° C., a large number of colonies of different bacteria; and it was apparent that the exposure to ozone had resulted in the destruction of a large majority of these, although complete sterilisation was not obtained as in the case of Flasks 1, 2, and 5. At the end of the experiment the milk in Flasks 1, 2, 3, and 4, although not changed in appearance, had acquired an extremely disagreeable taste and smell, which was in all probability at least partly due to the development of fatty acids. It seemed, therefore, possible that in the case of these milks, not only might the ozone have had a directly injurious action on the bacteria, but it might also have affected them indirectly by producing from the natural milk various bodies which might themselves also have to be considered as factors in the experiment. The milk in Flask 5 was in a late stage of decomposition and possessed of a most offensive odour; it was noticed that the offensiveness of this milk was considerably reduced after the passage of the ozone.

EXPERIMENT V.

Our next experiment was made in order to ascertain whether ozone had any influence on the virulence as apart from the mere vitality of bacillus tuberculosis and was carried out in the following way. Sputum rich in the specific bacillus was smeared over strips of filter-paper. These strips were then dried and afterwards exposed for varying periods to the action of highly-ozonised air. The exposure was insured by pinning out the strips on a board, which was hung about six feet from the same ozonising apparatus as that used in Experiment I. and in the same room. The apparatus was set at work two hours before the exposure of the sputum was commenced and was continued without intermission throughout the experiment. When the exposure was commenced the air of the room was so highly charged with ozone as to be extremely unpleasant and not respirable by anyone for more than a few minutes at a time. After undergoing exposures of the several durations given in the table below the strips of infected paper were moistened, stretched out on glass, and the surface which had been smeared with the sputum was scraped off lightly with the edge of a knife. The scraping from each strip was collected in a cubic centimetre of sterilised normal saline solution and doses of 0·2 cubic centimetre of the emulsions thus obtained were injected under the skin of the inguinal fold in guinea-pigs. As controls other guinea-pigs were similarly inoculated with some of the crude sputum and also with the scrapings from an infected strip of paper which had not been previously ozonised. 14 animals in all were inoculated; the following table gives their weights and the nature of the emulsion used for each:—

Animal.	Weight.	Inoculated with—
	Grms.	
Guinea-pig I.	500	Small quantity of crude sputum.
,, II.	470	,, ,, ,,
,, III.	360	Emulsion from filter-paper, not ozonised.
,, IV.	339	,, ,, ,, ,,
,, V.	420	,, ,, ,, ozonised ½ hour.
,, VI.	436	,, ,, ,, ,, ½ ,,
,, VII.	450	,, ,, ,, ,, 1 ,,
,, VIII.	455	,, ,, ,, ,, 1 ,,
,, IX.	390	,, ,, ,, ,, 2 hours.
,, X.	450	,, ,, ,, ,, 2 ,,
,, XI.	370	,, ,, ,, ,, 4 ,,
,, XII.	370	,, ,, ,, ,, 4 ,,
,, XIII.	410	,, ,, ,, ,, 8 ,,
,, XIV.	370	,, ,, ,, ,, 8 ,,

The various animals were either allowed to die naturally or were killed with chloroform after definite signs of tuberculous infection had developed. And it may at once be said that a severe infection occurred in all the animals; there was not the least indication that the ozonisation had exerted any effect whatever on the virulence of the bacilli. As examples we may mention the following animals: guinea-pig I. died on the twentieth day after inoculation with a caseous abscess in the flank, infected mesenteric glands, and tubercles in the spleen; guinea-pig II. was killed on the twenty-second day after inoculation and was found to be in a similar condition; guinea-pig XI. died on the twenty-second and guinea-pig XIV. on the twenty-third day, both being again in a similar stage. The presence of the specific bacillus in one or other of the internal lesions was proved in the case of every animal on the list.

CONCLUSIONS.

Our experiments have made it clear that ozone in the dry state, and in such strength as we used it, has no appreciable action on the vitality of the various bacteria experimented with, and, so far, our results are in accordance with those of Sonntag and Ohlmüller. Nor did a prolonged exposure to the action of ozone diminish in any way the pathogenic virulence of bacillus tuberculosis in sputum as shown by Experiment V. Single experiments would also tend to show that ozone can have little, if any, effect on the pathogenic virulence of bacillus mallei and bacillus anthracis.

On the other hand, Experiment IV. would appear to confirm the conclusion arrived at by Ohlmüller as to the bactericidal property of ozone when passed through a fluid medium containing bacteria in suspension.

A comparison of the inactivity of ozone as a disinfectant in the dry state with its action in the presence of water suggests a superficial resemblance with other gases, such as chlorine and sulphur dioxide. In the absence of further experiment, however, it would not be possible to press the analogy too closely.

In the dry state, and under the conditions in which it occurs in nature, ozone, then, is not capable of any injurious action on bacteria so far as can be judged from our experiments; and we conclude that any purifying action which ozone may have in the economy of nature is due to the direct chemical oxidation of putrescible organic matter, and that it does not in any way hinder the action of bacteria, which latter are, indeed, in their own way working towards the same end as the ozone itself in resolving dead organic matter to simpler non-putrescible substances.

ON THE QUANTITATIVE ESTIMATION OF THE BACTERICIDAL POWER OF THE BLOOD

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SECOND COMMUNICATION.[1]

IN a previous communication dealing with the quantitative determination of the bactericidal power of the blood I described the technique of a method by which the bactericidal power of blood could be determined. It will be remembered that for the purposes of the determination a measured volume of a series of graduated dilutions of serum were mixed in capillary cultivation-tubes, in each case with an equal volume of a liquefied gelatin culture containing in suspension an appropriate number of the species of micro-organism against which the blood was to be tested. Of the questions which arise in connexion with the above method two may be briefly dealt with here.

The first of these is the question as to whether in the case where no colonies develop in the mixture of serum and gelatin culture it may legitimately be inferred that a complete bactericidal effect has been achieved. This question can readily be determined by melting down the gelatin in the capillary cultivation-tubes and by blowing out their contents into a series of tubes of sterile nutrient broth. The results

[1] The first communication was published in THE LANCET of Dec. 1st, 1900, p. 1556.

that are obtained when this is done may be judged of by the observations set forth in the subjoined table (Table I.).

The second question relates to the influence exerted on the result of the quantitative estimation of the bactericidal power by the greater or smaller number of bacilli in the volume of culture brought in contact with the serum. The determination of this point manifestly involves on the one hand a determination of the number of bacteria present in the culture employed, and on the other hand a comparison of the effects of the serum when added to a series of graduated dilutions of the culture.

TABLE I.

Source of the serum.	Dilutions of serum which were mixed with the gelatin culture of the bacillus typhosus.	Number of days during which cultivation was continued.	Number of colonies detected on microscopical examination of the cultivation tubes.	Result of the introduction of the contents of the cultivation tubes into nutrient broth.
F. W (normal man)...	Tube 1 — 2 „ 2 — 5 „ 3 — 10 „ 4 — 20 „ 5 — 40	Two days.	Tube 1 — 0 „ 2 — 0 „ 3 — 0 „ 4 — 3 „ 5 — 81	Tube 1 — medium remains sterile. „ 2 — „ „ „ „ 3 — pure growth of bacillus typhosus. „ 4 — „ „ „ „ „ 5 — „ „ „ „
S. B. S. (recently twice inoculated with anti-typhoid vaccine)	Tube 1 — 2 „ 2 — 5 „ 3 — 10 „ 4 — 20 „ 5 — 40 „ 6 — 80 „ 7 —160	Two days.	Tube 1 — 0 „ 2 — 0 „ 3 — 0 „ 4 — 0 „ 5 — 0 „ 6 — 0 „ 7 — 0	Tube 1 — medium remains sterile. „ 2 — „ „ „ „ 3 — „ „ „ „ 4 — „ „ „ „ 5 — „ „ „ „ 6 — pure growth of bacillus typhosus. „ 7 — „ „ „ „
R. T. B. (inoculated once, nine months previously, with anti-typhoid vaccine)	Tube 1 — 2 „ 2 — 5 „ 3 — 10 „ 4 — 20 „ 5 — 40	Two days.	Tube 1 — 0 „ 2 — 0 „ 3 — 1 „ 4 — 8 „ 5 — 36	Tube 1 — medium remains sterile. „ 2 — „ „ „
A. E. W. (inoculated, 27 months previously, with anti-typhoid vaccine)... ...	Tube 1 — 2 „ 2 — 5 „ 3 — 10 „ 4 — 20 „ 5 — 40 „ 6 — 80	Three days.	Tube 1 — 0 „ 2 — 0 „ 3 — 0 „ 4 — 0 „ 5 — 0 „ 6 — 13	Tube 1 — medium remains sterile. „ 2 — „ „ „ „ 3 — pure growth of bacillus typhosus. „ 4 — „ „ „ „ „ 5 — „ „ „ „ „ 6 — „ „ „ „
Normal horse blood...	Tube 1 — 2 „ 2 — 5 „ 3 — 10 „ 4 — 20 „ 5 — 40 „ 6 — 80	Three days.	Tube 1 — 0 „ 2 — 0 „ 3 — 0 „ 4 — 0 „ 5 — 2 „ 6 — 74	Tube 1 — medium remains sterile. „ 2 — „ „ „ „ 3 — „ „ „ „ 4 — „ „ „ „ 5 — pure growth of bacillus typhosus. „ 6 — „ „ „ „
Normal rabbit's blood	Tube 1 — 2 „ 2 — 5 „ 3 — 10 „ 4 — 20	Two days.	Tube 1 — 0 „ 2 — 0 „ 3 — 2 „ 4 — 8	Tube 1 — medium remains sterile. „ 2 — „ „ „
Blood of rabbit (after injection of an anti-typhoid serum)	Tube 1 — 2 „ 2 — 5 „ 3 — 10 „ 4 — 20 „ 5 — 40	Four days.	Tube 1 — 0 „ 2 — 0 „ 3 — 0 „ 4 — 0 „ 5 — 0	Tube 1 — medium remains sterile. „ 2 — „ „ „ „ 3 — „ „ „ „ 4 — „ „ „ „ 5 — pure growth of bacillus typhosus.

The method of carrying out the required operations rapidly and efficiently may be briefly described, more particularly as the technique in question enables us, as will be seen below, to arrive at a definite arithmetical expression for the bactericidal power which is exerted by a given blood upon a given bacterial culture.

A series of graduated dilutions of a broth culture of the required species of micro-organisms are first made. In the case of a culture of the typhoid bacillus it will suffice to employ, in addition to the undiluted culture, dilutions of 10, 100, 1000, 10,000, and 100,000. These dilutions can be made by using the graduated capillary pipette figured in my former communication. It will, however, be conducive to rapid work if a "mixing chamber" is formed upon the neck of the capillary pipette by heating and drawing it out a little beyond the capillary stem. When this has been done 10, 20, 30, or more volumes of fluid can be drawn up and mixed together without emptying the pipette. Given such a pipette, the stem of which has been divided into six equal divisions of 2·5 cubic millimetres, the procedure for making a convenient quantity, say 30 volumes (0·75 cubic centimetre), of a tenfold, or any further tenfold multiple, of the bacterial culture would be as follows. Six volumes of sterile broth are first filled into the capillary stem; a bubble of air is then taken in; and, while the first six volumes of broth are passing up into the mixing chamber, another six volumes of broth; and so on in series until in all 27 volumes of broth and a final bubble of air have been taken in. Three volumes of the broth culture are now introduced into the stem of the capillary pipette. The whole contents are thoroughly mixed in the mixing chamber and are then expelled into a sterile and covered watch-glass.[2] After the pipette has been thoroughly washed

[2] The sterile watch-glasses required can be most expeditiously prepared by heating them on wire gauze until a red pencil mark placed on each with one of the pencils sold for writing on glass begins to blacken. The temperature indicated by the blackening of such red pencil marks is well over 200° C.

TABLE II.

Source of blood and nature of the bacterial culture against which it was tested.	Determination of the number of bacteria in the culture.		Result of the enumeration of bacteria in the original culture.	Determination of the bactericidal power of the serum.		Bactericidal power of the blood as estimated from the foregoing.
	Dilutions of the culture and volume of these dilutions employed for the bacterial enumeration.	Number of colonies which developed from the specified volume of diluted culture.		Dilutions of the bacterial culture which were mixed in equal volume with undiluted serum.	Result of the cultivation when the mixtures particularised in the last column were after 24 hours planted out on nutrient agar or broth.	
Blood of A. E. W. tested against an 18-hour peptone and salt cultivation of the cholera vibrio.	5 c.mm. of a 1 in 100,000 dilution.	Tube 1—20 „ 2—21 Average = 20·5	1 c.mm. of the culture contains 410,000	Undiluted. 10-fold dilution. 100- „ „ 1,000- „ „ 10,000- „ „ 100,000- „ „	One colony on agar. No growth. „ „ „ „	1 c.mm. of serum kills nearly 410,000 of the cholera vibrios employed
Blood of A. E. W. (inoculated 27 months previously with anti-typhoid vaccine) tested against a broth cultivation of the bacillus typhosus ...	5 c.mm. of a 1 in 100,000 dilution.	Tube 1—21 „ 2—30 Average = 25·5.	1 c.mm. of the culture contains 510,000	10-fold dilution. 100- „ „ 1,000- „ „ 10,000- „ „ 100,000- „ „	Eight colonies on agar. One colony „ „ No growth. „ „	1 c.mm. of serum kills nearly 5100 of the typhoid bacilli employed.
Blood as above mixed in vitro with an equal volume of an anti-typhoid serum tested against the broth culture as above	As above.	As above.	As above.	100-fold dilution. 1,000- „ „ 10,000- „ „ 100 000 „ „	Growth in broth. „ „ „ „ „ „	1 c.mm. of the mixture of sera fails to kill 5 of the typhoid bacilli employed.
Blood of R. T. B. (inoculated once nine months previously with anti-typhoid vaccine) tested against a 10-day old broth culture of the bacillus typhosus ...	Tubes 1 and 2, 2·5 c.mm. of a 1 in 100,000 dilution. Tube 3, 5 c.mm. of same dilution.	Tube 1—39 „ 2—29 „ 3—69 Average in 2·5 c.mm. = 34.	1 c.mm. of the culture contains 1,360,000	Undiluted. 10-fold dilution. 100- „ „ 1,000- „ „ 10,000- „ „ 100,000- „ „	No growth in broth. „ „ „ „ „ „ „ „ „ „	1 c.mm. of serum kills at least 1,360,000 of the typhoid bacilli employed.
Blood of A. E. W. tested against the culture as above ...	As above.	As above.	As above.	Undiluted. 10-fold dilution. 100- „ „ 1,000- „ „ 10,000- „ „ 100,000- „ „	Numerous colonies on agar. Three colonies „ „ No growth. „ „ „	1 c.mm of serum kills nearly 136,000 of the typhoid bacilli employed.
Blood of A. E. W. tested against a 48-hour old broth cultivation of staphylococcus albus	Tubes 1 and 2, 5 c.mm. of a 1 in 10,000 dilution. Tubes 3 and 4, 5 c.mm. of a 1 in 100,000 dilution. Tubes 5 and 6, 5 c.mm. of a 1 in 1,000,000 dilution.	Tube 1—12 „ 2— 6 „ 3— 1 „ 4— 1 „ 5— 0 „ 6— 0 Average in 5 c.mm. = 0·96.	1 c.mm. of the culture contains 19,000	Undiluted. 10-fold dilution. 100- „ „ 1,000- „ „ 10,000- „ „ 100,000- „ „ 1,000,000- „ „	Growth on agar. „ „ „ „ „ „ „ „ „ „ „ „	* 1 c.mm. of serum fails to kill 0·2 of the staphylococci employed.

* With a view to determining whether, in default of a definite bactericidal effect, an inhibitory effect was exerted by this serum on the growth of the staphylococcus a determination of the anti-bacterial power was made also by the gelatin method described in my previous communication. This determination, in addition to resolving the particular point referred to, yielded results which are of interest here as establishing the substantial accuracy of method of enumeration employed above. The details of the procedure and the results obtained were briefly as follows. Five cubic millimetres of the undiluted staphylococcus culture were placed in 16 cubic centimetres of liquefied sterile nutrient gelatin and were thoroughly mixed. *This gelatin thus represented a 3200- (200 × 16) fold dilution of the original broth culture of staphylococcus.* From this gelatin four serum and four control tubes were filled in as follows:—

	Serum Tubes.		*Control Tubes.*		
—	Filled in with—	Number of colonies which developed.	—	Filled in with—	Number of colonies which developed.
No. 1	2·5 c.mm. of gelatin culture + 2·5 c.mm. of serum.	0	No. 1	2·5 c.mm. of gelatin culture + 2·5 c.mm. sterile broth.	7
No. 2	2·5 c.mm. of gelatin culture + 2·5 c.mm. of serum.	0	No. 2	2·5 c.mm. of gelatin culture + 2·5 c.mm. sterile broth.	14
No. 3	2·5 c.mm. of gelatin culture + 2·5 c.mm. of serum.	0	No. 3	5 c.mm. of gelatin culture + 5 c.mm. sterile broth.	26
No. 4	2·5 c.mm. of gelatin culture + 2·5 c.mm. of serum.	0	No. 4	5 c.mm. of gelatin culture + 5 c.mm. sterile broth.	24

Average of all the controls, 11·5 in 2·5 c.mm., 4·6 in one c.mm., of the gelatin.
Average (omitting from consideration control No. 1), 13·0 in 2·5 c.mm., 5·2 in one c.mm., of the gelatin.
Multiplying by 3200, the factor corresponding to the dilution of the original culture in the gelatin, we arrive at the figures of 14,700 and 16,640 respectively for the number of staphylococci in the original culture. The latter figure in particular is in fairly satisfactory agreement with the result of the enumeration as set forth in the table.

out in boiling sterile water the same procedure is repeated in the case of each further dilution with the difference that the last three volumes are filled in, instead of with the undiluted culture, with the previous dilution of that culture.

Having in this way obtained the required dilutions the enumeration of the number of bacteria contained in the last dilution—or, if desired, in the last two dilutions—would be taken in hand. For this purpose one volume of the dilution or dilutions in question are introduced along with one volume of liquefied, sterile nutrient gelatin into a "capillary cultivation-tube." This is done by the methods already described in my former communication. With a view to checking the accuracy of the work such tubes are in each case filled in in duplicate and triplicate. By enumeration under the microscope of the number of colonies, developing in the tubes thus filled in, the number of bacteria in the measure (2·5 or 5 cubic millimetres) of diluted culture is elicited. From this by a simple arithmetical calculation the number of bacteria in the unit measure of undiluted culture is obtained.

After the completion of the procedures which subserve the purpose of the bacterial enumeration, those directed to the determination of the bactericidal effect of the blood on the various dilutions of the bacterial culture are taken in hand. For this purpose a series of sedimentation-tubes, such as those figured by me in THE LANCET of March 6th, 1897, p. 657, are taken in hand, after they have been plugged with cotton-wool and sterilised in the flame. Into each of these is introduced one volume of undiluted serum and one volume of typhoid culture, the successive tubes being of course filled in with the successive dilutions of the culture. Mixture of the contents is then effected in the mixing chamber, and the tube is sealed after the mixture has been driven down for a moment to the point of the stem, so as to secure that any bacteria which have been left there shall be brought into contact with the serum. The sealed tubes are then incubated at 37° C. for from 18 to 24 hours. After this they are blown out with aseptic precautions either into nutrient broth or upon the surface of an agar plate.[2] The results obtained in a series of successive estimations made by this method are as follows (Table II.).

The conclusions which can be gathered from the results set forth in the tabular statement above may be summarised as follows:—

1. What is measured by the gelatin method described in my former communication is rather the total *anti-bacterial power* of the blood than the bactericidal power proper. To determine how much of the result which is registered is referable to an inhibition of the growth of the bacteria, and how much to a direct bactericidal action, it is necessary, after the cultivation-tubes have been incubated and examined microscopically, to melt down the gelatin and to blow out the contents of the tubes into sterile nutrient broth.

2. Where it is desired separately to estimate the *bactericidal power* this can readily be done by making a series of graduated dilutions of a bacterial cultivation in broth, and by mixing, in the manner described in the present communication, one volume of each of these with one volume of undiluted—or, if necessity should arise, diluted—serum. This method may appropriately be applied when we are dealing with bacteria such as the vibrio of cholera or the typhoid and diphtheria bacillus, which are readily killed off by the normal human blood.

3. When the method last in question is employed, and when the bacteria in the culture employed have been enumerated in the manner indicated, a convenient arithmetical expression for the bactericidal power is obtained by specifying the number of micro-organisms which one cubic millimetre of serum is capable of killing.

4. Where (as in the case of the staphylococcus and apparently, also, in the case of the streptococcus and bacillus of plague) we have to deal with bacteria which are not killed off, or which are killed off only in small numbers, by the normal human blood, or, again, where we are dealing with conditions (such as those frequently met with in persons recently convalescent from typhoid fever) when the blood has lost much of its normal bactericidal power, the gelatin method, measuring as it does the combined inhibitory and bactericidal power, may appropriately come into application.

Netley.

[2] The difficulties incident to the swamping of the agar-plate by water of condensation can, in conformity with a suggestion which I owe to Major W. B. Leishman, R.A.M.C., be avoided by fastening a pledget of absorbent cotton-wool down with gum on to the lower surface of the lid of the Petri's dish.

RESULT OF MAJOR AMPUTATIONS

TREATED ANTISEPTICALLY IN THE ROYAL INFIRMARY, NEWCASTLE-UPON-TYNE, DURING THE YEAR 1899, AND FOR A PERIOD OF TWENTY-ONE YEARS AND NINE MONTHS—VIZ., FROM APRIL 1ST, 1878, TO DEC. 31ST, 1899, INCLUSIVE.

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MR. F. PAGE has asked me to carry on the record of major amputations performed in the Royal Infirmary, Newcastle-upon-Tyne.[1]

TABLE I.—*Table of Major Amputations treated Antiseptically in the Royal Infirmary, Newcastle-upon-Tyne, during the Year 1899.*

—	Injury.			Disease.			Total.
	No.	Recovered.	Died.	No.	Recovered.	Died.	
Double amputations	3	2	1	—	—	—	3
Hip-joint	—	—	—	—	—	—	—
Thigh...	5	4	1	16	14	2	21
Knee-joint	3	3	—	2	2	—	5
Leg	7	6	1	6	6	—	13
Ankle-joint	3	3	—	7	7	—	10
Shoulder-joint ...	—	—	—	—	—	—	—
Arm	3	3	—	3	3	—	6
Forearm	7	6	1	1	1	—	8
Wrist...	1	1	—	—	—	—	1
—	32	28	4	35	33	2	67

During the year 1899 67 major amputations—three of which were double amputations—were performed on 64 patients, six of whom died and 58 recovered. The mortality was, therefore, at the rate of 9·3 per cent. Of the 32 cases of amputation for injury four patients died, or a mortality of 12·5 per cent. There were 25 cases of primary amputation and four deaths—a mortality of 16 per cent. 35 of the amputations were for disease and in two cases the patients died—a mortality of 5·7 per cent. In one of the double amputations the amputations were primary in the legs; unfortunately both stumps had to be re-amputated owing to sloughing of the flaps. The patient nevertheless made a good recovery.

PRECISE CAUSE OF DEATH AFTER AMPUTATION FOR INJURY.

1. *Double amputation.*—A man, aged 46 years, was knocked down by a train and sustained such injuries that a double amputation was performed in the right leg by Teale's amputation, and on the left side amputation through the lower third of the thigh. He died 77 hours after from acute spreading gangrene of the right leg. The bacilli of malignant œdema were found in the discharge of the stump and surrounding tissues. There was an abrasion of the skin of the flaps, and it was thought that the bacilli had entered there in spite of thorough cleansing. As soil and dirt were ground into the legs it was suggested that the bacilli were already in the lymphatics at the time of the operation. The operation was performed six hours after the accident.

2. *Thigh.*—A man, aged 45 years, died three days after amputation of the thigh performed for a crushed leg from shock.

[1] THE LANCET, March 21st, 1896, p. 763.

3. *Leg.*—A man, aged 22 years, died 14 hours after an amputation of the leg just above the ankle. He was knocked down by an engine and in addition had a lacerated thigh and a fractured pelvis. He was infused with four pints of normal saline solution.

4. *Forearm.*—A man, aged 78 years, was knocked down by a cab on July 28th, 1899. He had a scalp wound, was concussed and lost a lot of blood from his hand being nearly severed. Amputation in the middle of the forearm was performed. The wound healed, but he gradually became exhausted and died on August 5th, never having properly shaken off the effects of the shock.

PRECISE CAUSE OF DEATH AFTER AMPUTATION FOR DISEASE.

1. *Thigh.*—A man, aged 39 years, had a sarcoma of the thigh. Amputation was performed on March 28th; the femoral glands were affected and it was necessary to tie the femoral artery and vein at Poupart's ligament, as they were involved. The flaps became gangrenous; septicæmia followed and he died on March 31st.

2. *Thigh.*—A man, aged 56 years, had his thigh amputated for senile gangrene of the foot. The operation was done on July 11th and he died on the 14th from exhaustion.

TABLE II.—*Result of Major Amputations treated Antiseptically in the Royal Infirmary, Newcastle-upon-Tyne, from April 1st, 1878, to Dec. 1st, 1899—a Period of 21 Years and Nine Months.*

—	Injury.			Disease.			Total.
	No.	Recovered.	Died	No.	Recovered.	Died.	
Double amputations	27	14	13	—	—	—	27
Hip-joint	8	3	5	36	22	14	44
Thigh	100	77	23	280	260	20	380
Knee-joint	13	12	1	10	8	2	23
Leg	135	119	16	130	127	3	265
Ankle-joint	51	50	1	175	173	2	226
Shoulder-joint	28	26	2	19	18	1	47
Arm	70	63	7	37	36	1	107
Forearm	68	65	3	38	38	—	106
Wrist	8	8	—	—	—	—	8
—	508	437	71	725	682	43	1233

In the above record 1233 major amputations have been performed in the Royal Infirmary, Newcastle-upon-Tyne. Of this number 1119 patients have recovered and 114 have died—a mortality of 9·2 per cent. 508 cases were those of amputation for injury and 71 patients died—a mortality of 13·9 per cent.; 725 were for disease and 43 patients died—a mortality of 5·9 per cent.

Newcastle-on-Tyne.

A METHOD OF

DISTINGUISHING BACILLUS COLI COMMUNIS FROM BACILLUS TYPHOSUS BY THE USE OF NEUTRAL RED.

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(*From the Bacteriological Laboratory, London Hospital, E.*)

THE question of the relationships between the bacillus typhosus and the bacillus coli communis has played an important part in the bacteriological investigation of cases of enteric fever. Since Eberth, Gaffky, and Koch published their papers on the constant presence in the intestine, spleen, and other organs of a characteristic bacillus in cases of typhoid fever, there has been much controversy as to whether this bacillus—the bacillus typhosus—is merely a variety of the bacillus coli communis. Although the majority of bacteriologists are of opinion that these micro-organisms are specifically different, so eminent an investigator as Gabriel Roux has all along maintained that the physiological tests which are utilised for the differentiation of the two micro-organisms are insufficient to establish a specific difference between them. As Lehmann and Neumann [1] remark, it is quite possible that the bacillus typhosus may only be a variety of bacillus coli communis—a variety which has lost certain zymogenic but gained certain pathogenic characters.

Considerable attention has been paid to the biological characters of the two organisms in order to distinguish the one from the other. Although many tests—as the indol reaction, the milk test, the reaction with glucose litmus agar, &c.—have been extensively used in order to diagnose between them it is found by repeated examination of different strains of these microorganisms that there is scarcely one of the many tests which may not fail. Many investigators have repeatedly demonstrated that bacillus coli communis may, under certain circumstances, lose even its power of producing indol and of coagulating milk. For instance, Lembke [2] has found that certain strains of bacillus coli communis fail to produce gas in media containing glucose; Scheffler [3] found that the production of acid may fail, and according to Lehmann and Neumann the bacillus typhosus may occasionally, though rarely, grow atypically upon potato, the growth resembling bacillus coli communis.

Even the agglutination test in distinguishing bacillus typhosus from bacillus coli communis is *not always reliable*. From the researches of Pfeiffer and others it was thought that this agglutination reaction would afford an absolutely reliable method of distinguishing these two micro-organisms from each other and from other micro-organisms belonging to the typhoid group. The recent researches of Mann, [4] Vedel, [5] Kohler and Scheffler, [6] and others, however, have shown that some races of the bacillus coli communis give a positive reaction even in high degrees of dilution with typhoid serum. In this connexion it is important to remember that sera obtained from patients suffering from enteric fever are in the majority of instances capable of agglutinating the bacillus coli communis as well as the bacillus typhosus. This, as Stern, [7] Biberstein, [8] Widal, [9] and others have shown, is due to mixed infection, one of the commonest occurrences in cases of enteric fever. An excellent example of this fact was published by Widal in 1897. The blood serum obtained from a convalescent typhoid fever patient agglutinated a strain of bacillus typhosus in the dilution of 1 in 20. A paracolon bacillus which he had isolated from an abscess of the thyroid gland, however, was agglutinated by this serum in the dilution of 1 in 12,000. Eight days later the agglutination reaction with the bacillus typhosus had disappeared, the paracolon bacillus, however, still giving the reaction in the dilution of 1 in 12,000. During the course of the disease the blood serum of this patient gave constantly an agglutination reaction with bacillus typhosus in the dilution of 1 in 100. That this case was one of secondary infection with bacillus coli communis is clear, and, as Widal concluded, the blood serum of the patient gave two distinct and independent reactions. The only sera, therefore, which can be employed for differential diagnosis are those obtained from animals immunised against the bacillus typhosus *in pure culture*. The maintaining of the bacillus typhosus in pure culture and at a constant degree of virulence during the process of immunisation, however, is a most difficult technical procedure. Unless excessive care is taken during the process of increasing the virulence of the bacillus typhosus contamination with bacillus coli communis will take place. If such cultures be employed for purposes of immunisation then coli agglutinating substances will also be present in the blood serum of the animal immunised. Therefore, so great difficulties being present the test cannot be regarded, as it is by some, as final. All that can be said at present is that given a suspected bacillus typhosus culture a negative result is of greater value than a positive reaction obtained with a suspected bacillus coli culture. At the present time, therefore, we possess no single test which can be considered crucial. Before coming to any definite conclusion each test

[1] Atlas und Grundriss der Bakteriologie, 1899.
[2] Archiv für Hygiene, Band xxvi., p. 299.
[3] Centralblatt für Bakteriologie, Band xxviii., p. 200.
[4] Archiv für Hygiene, Band xxxiv., 1899.
[5] Semaine Médicale, 1896, and Bulletin Médical 1898.
[6] Münchener Medicinische Wochenschrift No. 22, 1900, p. 757.
[7] Centralblatt für Bakteriologie, 1898, Band xxiii., No. 16.
[8] Zeitschrift für Hygiene, 1898, Band xxvii.
[9] Semaine Médicale, 1897, and Comptes Rendus des Séances de la Société de Biologie, October, 1897.

has to be extremely carefully performed and taken in conjunction with the others. By such means only is it possible to distinguish the one micro-organism from the other.

Recently a good deal of attention has been directed to the use of coloured media as a means of diagnosing between morphologically and biologically related micro-organisms. Many of the methods proposed have been highly satisfactory, this being due mainly to the fact that the slightest change in the medium used is easily recognisable.

The first employment of colouring matter as a means of diagnosis between closely related micro-organisms was proposed by Neeggerath.[10] Shortly after other colour tests were proposed by Cahen,[11] Buchner,[12] Spina,[13] Kitasato and Weyl.[14] In order to distinguish bacillus typhosus from bacillus coli communis Wuntz[15] recommended the employment of a solid medium to which was added lactose and litmus. The further development of our knowledge in regard to the biological properties of these micro organisms soon showed that such a medium would not afford a reliable method of diagnosis. More recently a large number of colour tests have been recommended, the most important of these being the use of fuchsin agar, recommended by Gasser[16]; fuchsin and malachite green by Marpmann[17]; acid gelatin with methyl green by Uffelmann[18]; and a medium composed of lactose, urea, and litmus by Kashida.[19]

The great drawback to all these colour methods of diagnosis is that they do not afford any opportunity of *rapid* diagnosis. The majority have as their main constituent gelatin, a substance upon which the bacillus typhosus and the bacillus coli communis grow relatively slowly. Therefore, as it is usually important to be able to give a rapid diagnosis as to the presence or absence of these micro-organisms it is obvious that the use of media containing gelatin must be avoided.

In 1898 Rothberger[20] published a series of results dealing with the action of a number of bacteria on various aniline colours. His results are specially interesting as he found that by the use of neutral red or saffranin, he had a valuable diagnostic method of distinguishing bacillus typhosus from bacillus coli communis. The method which he employed was agar-agar to which was added a small quantity of a concentrated watery and sterilised solution of neutral red or saffranin. The tubes containing this neutral red or saffranin agar were inoculated with bacillus typhosus and bacillus coli communis and incubated at 37° C. for 24 hours. According to Rothberger, the following result is obtained in the tubes which have been inoculated with bacillus coli communis. The neutral red agar becomes greenish yellow and markedly fluorescent. The saffranin agar becomes completely decolourised. In the tubes which have been inoculated with bacillus typhosus no perceptible change is produced in either of the media.

This result is very striking. From the further researches of Rothberger and the more or less confirmatory work of Scheffler,[21] the test appears to give constant results. During the past 18 months I have had frequent opportunity of studying the morphological and biological characteristics of the bacillus typhosus and bacillus coli communis, and from the results obtained I came to the conclusion that in a few cases it was scarcely possible to establish with absolute certainty the presence in pure culture of bacillus typhosus or bacillus coli communis. The publication by Rothberger of the results which he had obtained with neutral red appeared to me to be worthy of further study and the following are briefly the methods which I have employed and a summary of the results obtained. In order to determine the exact nature of the reaction the method which I adopted is as follows. To a number of tubes, each containing approximately 10 cubic centimetres of ordinary peptone agar, I added from 0·1 to 0·5 cubic centimetre of a concentrated watery solution of neutral red. The agar was then melted and the colouring matter evenly distributed throughout the medium. The tubes on being cooled down to about 42° C. were inoculated with one oese of a pure culture in bouillon of bacillus coli communis, and after thorough shaking incubated at 37°C. Control tubes with bacillus typhosus were prepared in exactly the same way. After 24 hours the tubes which had been inoculated with bacillus coli communis showed an abundant growth with marked gas production. The medium, instead of being of a deep red colour, had assumed a superb canary-yellow fluorescent tint. The fluorescence was most marked in the deeper parts of the tube. Further, slight liquefaction of the agar had taken place. The typhoid tubes, on the other hand, showed absolutely no change, although a good growth was obtained. After 48 hours the coli tubes were more or less completely decolourised and the fluorescence was decidedly less marked. The typhoid tubes still showed no change. This remarkable result having been obtained further experiments were made in order to determine as exactly as possible the most favourable conditions under which the method succeeds.

If plate cultivations of bacillus typhosus and bacillus coli communis be made with neutral red agar a somewhat surprising result is obtained. After 24 hours' incubation of the plates a marked decolourisation of the medium takes place. This change is as well marked in the typhoid as in the coli plates. Further, the medium is usually found to contain a large number of needle and star-shaped crystals of a reddish colour—probably crystals of neutral red or some product from it. On more minute examination of the plates the colonies of both micro-organisms appear to have taken up a great deal of the colouring matter. The centre of each colony is constantly found stained of a deep red colour. After incubation of the plates for a few days the medium as well as the colonies of both micro-organisms becomes completely decolourised. No fluorescence is ever observed. The red crystals already mentioned remain unchanged. I have obtained similar results in plate cultures prepared with glycerine agar and peptone gelatin. Somewhat similar results have been obtained by Rothberger, who rightly concludes that this method of procedure is of no value. The only point of interest attached to this result is that it clearly proves that the bacillus typhosus is quite as capable as the bacillus coli communis of decolourising neutral red in plate cultures.

By far the most satisfactory results are obtained with shake or stab cultures. Ordinary agar gives usually good results, but glucose agar is to be preferred. My results agree with those obtained by Scheffler that the quickest and most constant results are obtained with glucose agar. Usually some idea as to the presence or absence of bacillus coli communis can be obtained in from 12 to 24 hours. There appears to be some difference of opinion as to the amount of glucose required. According to Scheffler 0·3 per cent. glucose gives the best results. My experience leads me to believe that the development of the fluorescence depends to a great extent upon the amount of glucose present. If present in small quantity, a marked fluorescence is developed after 24 hours; if, on the other hand, glucose be present in the amount of from 1·5 per cent. to 2 per cent., little of this fluorescent appearance is met with, the majority of the tubes being of a uniform yellow colour. In my opinion too great stress is laid upon the occurrence of fluorescence by Scheffler, the change in colour from red to yellow in from 12 to 24 hours being a sufficient guarantee of the presence of bacillus coli communis. As already mentioned, gelatin cannot be used. The reaction, however, although slow in appearance, occurs equally well, the fluorescence and yellow colour being in some cases markedly developed. Here, again, glucose gelatin gives the most satisfactory results. Upon bouillon the reaction also succeeds. On this medium the fluorescence is only faintly developed. After 24 hours the broth is usually of a uniform yellow colour. Similar results have been obtained with liquid blood serum, peptone water, milk, &c. A point of great interest in connexion with the occurrence of the reaction upon different media is the negative result obtained by the use of a proteid free medium. If neutral red be added to Uschinsky's medium which is then inoculated with bacillus coli communis absolutely no change in colour is produced, although a good growth is obtained.

Since commencing my experiments with neutral red I have tested a number of strains of bacillus coli communis and bacillus typhosus, and under the conditions specified I have obtained absolutely constant results. Bacillus coli communis always produces a fluorescence and change of colour in the neutral red media in 24 hours, bacillus typhosus never.

[10] Centralblatt für Bakteriologie, Band iii., p. 481.
[11] Zeitschrift für Hygiene, Band ii., p. 386.
[12] Archiv für Hygiene, Band iii., p. 361.
[13] Centralblatt für Bakteriologie, Band ii., p. 71.
[14] Zeitschrift für Hygiene, Band viii., p. 44.
[15] Bulletin Médical, 1891, No. 100.
[16] Semaine Médicale, 1890.
[17] Centralblatt für Bakteriologie, Band xvi., p. 817.
[18] Berliner Klinische Wochenschrift, 1891, No. 35.
[19] Centralblatt für Bakteriologie, Band xxi., p. 802.
[20] Ibid., Band xxiv., and Band xxv., pp. 15 and 69.
[21] Ibid., Band xxviii., p. 199.

Through the kindness of Mr. W. C. C. Pakes of Guy's Hospital I have had the opportunity of submitting to this neutral red test a culture of the so-called bacillus enteritidis of Gaertner. In all of the tubes inoculated with this bacillus a marked reduction of the neutral red took place in less than 24 hours. The reaction was indistinguishable from that obtained with typical coli cultures. This result is extremely important, as it brings forward additional proof that the bacillus enteritidis is merely a variety of bacillus coli communis as suggested by Lehmann and Neumann. The majority of cultures of micro-organisms, as staphylococcus, streptococcus, pneumococcus, bacillus diphtheriæ, bacillus mallei, bacillus anthracis, bacillus pyocyaneus, and vibrio choleræ, &c., which I have had at my disposal have been submitted to this test, but *in no case* has the slightest reduction taken place. At the same time the reaction cannot be regarded as specific. As found by Rothberger bacillus tetani, bacillus œdematis maligni, and the bacillus Chauvæ also give the reaction. As these micro-organisms, however, possess so many definite points of distinction of their own this can scarcely affect the value of the reaction in regard to bacillus coli communis. Further, Scheffler has obtained the reaction with a number of micro-organisms isolated from water and fæces. Probably these belong either to the coli group, which is extremely large, or to the already mentioned anaerobic forms.

The reaction must be regarded as a process of reduction as suggested by Rothberger and conclusively proved by Rambousék.[22] Neutral red is an extremely irreducible substance. It is only when nascent hydrogen has acted on a solution for some time that the characteristic fluorescence and yellow colour are produced. This being so, it is easy to understand why the bacillus typhosus fails entirely to effect the slightest change in colour in the neutral red, the powers of reduction of the bacillus typhosus being extremely slight. The members of the coli group, on the other hand, are well known as powerful reducing agents.

Conclusions.—1. That bacillus coli communis possesses to a marked degree the power of reducing neutral red, producing a superb canary yellow fluorescent colour of the medium. 2. That the so-called bacillus enteritidis of Gaertner also produces this reaction, and is probably only a variety of bacillus coli communis. 3. That the bacillus typhosus never possesses this power of reduction. 4. That the common pathogenic micro-organisms do not give this reaction. 5. That by means of neutral red it is possible within from 12 to 24 hours to diagnose with absolute accuracy the presence of bacillus coli communis. Finally, as far as my experience goes, it is possible to diagnose by means of neutral red the true coli group from the typhoid group of micro-organisms.

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[22] Archiv für Hygiene, Band xxxviii., 1900.

NOTE ON A CASE OF INFLUENZA WITH MENINGITIS AS A COMPLICATION.

BY ARTHUR FOSTER, M.D., C.M. EDIN.

A WOMAN, aged 54 years, the mother of two children, was in perfect health up to Jan. 28th, 1901. On awakening on the morning of the 29th she was suffering from pains in the back and legs, with a sore-throat and headache. She did not remain in bed, however, but endeavoured to follow her occupation, with the result that during the afternoon she had to relinquish it, the pain in the back having become very acute. The following morning (the 30th) I saw her for the first time. She then complained of intense pain in the lumbar region, aching pains in the legs and shoulders, a sore-throat, and some headache. There had been no delirium and she talked quite rationally. On examination slight tonsillitis was to be seen; the tongue was thickly coated with a white fur, the bowels were constipated, the lungs were healthy, the urine was free from albumin, the temperature was 103 5° F., the pulse was 95 per minute, and the respirations were 25 per minute. She was given a mixture containing tincture of nux vomica and salicylate of soda. On the 31st she was in much the same condition, though the pain in the back was rather better. The next morning (Feb. 1st) the headache was more severe and there was nausea, which during the day developed into attacks of vomiting and for which the usual remedies were of no avail. The temperature was now 104°, the pulse was 90, and the respirations were 36. At 6 P.M. of the same day the temperature quickly dropped to 97° (taken in the mouth), the pulse was regular (72), and the respirations were 26. She now began to have difficulty in speaking and swallowing and became drowsy. During the night the temperature gradually rose again and on the morning of the 2nd it had reached 103 5° with a pulse of moderate tension at 72 and a respiration, accompanied by puffing out of the lips, of 50. She was quite unable to talk or to swallow, had troublesome attacks of hiccough, and was in a state of stupor. Rigidity in the muscles of the neck and retraction of the head now became very marked, strabismus appeared, muscular tremors were to be felt and seen in the face, arms, and legs, there was partial paralysis of the muscles of one side of the face, and the urine was passed unconsciously. It was clearly evident that a severe case of meningitis had to be dealt with and icebags were freely applied to the head. On the morning of the 3rd the temperature was 101·5°, the pulse was 70, and the respirations were 72. The patient was now comatose and could not be roused. In the evening of the same day the action of the heart, which had previously been quiet, became so tumultuous that it shook the bed and during the night the temperature fell below normal and she passed quietly away.

There does not appear to be any doubt as to the diagnosis of influenza, though at first the acute pain in the back suggested small-pox, which the subsequent events disproved. Moreover, the son, who resided with his mother, was at the same time passing through a mild attack of influenza.

Deaths from meningitis supervening on influenza would appear to be rare, though Althaus[1] considers it a frequent complication. Two forms of it are described: 1. That in which there is a simple benign lesion, seldom fatal and which according to Maxime[2] is due to the special action of the toxins secreted by the influenzal microbes, producing inhibition phenomena, toxins which appear to have a predilection for the nerve-centres and for which the cerebro-spinal fluid serves as a receptacle. Althaus[3] in a series of post-mortem examinations has also noted this predilection for the nerve-centres, having found intense hyperæmia in the pia mater and brain, particularly at the base of the brain. 2. That in which the lesion is more severe, generally fatal, and in which the streptococcus, staphylococcus, or other bacilli play an important part. Cases of this kind have been described by Bristowe,[4] Nicolson,[5] and Judson Bury.[6] No necropsy was obtainable in the above recorded case and it is impossible to be sure as to what was the exact nature of the meningitis. There was certainly no history of ear disease or other septic trouble. Perhaps it may be of interest to note that for some weeks previously to her illness she had been worried and had suffered much mentally by family troubles.

Blackburn.

[1] Influenza, p. 133.
[2] THE LANCET, April 13th, 1895, p. 948.
[3] THE LANCET, Feb. 13th, 1892, p. 387.
[4] Brit. Med. Jour., vol. ii., 1891, p. 7.
[5] Quoted by Althaus, Influenza, p. 135.
[6] Brit. Med. Jour., vol. ii., 1900, p. 877.

THREE CASES OF CERVICAL SPINA BIFIDA TREATED AS OUT-PATIENTS BY OPEN OPERATION.

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CASE 1.—The patient came to the Glasgow Children's Hospital, at the age of seven weeks, on June 15th, 1900. Fig. 1 is a reproduction of a photograph taken on that date. Pinching of the neck of the sac between the finger and thumb produced smart jerking upward of the lower limbs after the manner of the wooden figure toy on pulling the string. On June 19th, chloroform being administered by the house surgeon, Dr. J. R. Chalmers, the tumour was removed.

There was nothing special to note in the operation except that the cord took a geniculate curve into the neck of the sac, to cover which the lateral flaps had to be made longer than usual. The child was sent home after operation and was nursed by the mother under the directions of one of the sisters. The wound healed by first intention and the sutures were removed on the seventh day.

CASE 2.—The patient came to the Children's Hospital Dispensary in the end of July, 1900, at the age of two months. Fig. 2 is a reproduction of a photograph taken at that time.

CASE 3.—This patient, who came the same week as the patient in Case 2, was aged five months. A photograph was taken at that time. Unfortunately, it was taken on a plate which had just been used for a case of talipes and so was spoiled.

FIG. 1.

ervical spina bifida. Meningocele into the neck or peduncle of which the spinal cord bulges in the form of a loop. Photograph taken four days previous to operation.

FIG. 2.

Cervical spina bifida. Pure meningocele. Photograph taken a week before operation.

Both cases were operated on on August 7th, 1900. Chloroform was administered by the house surgeon, Dr. Chalmers. Both proved to be pure meningoceles and the operations offered no points of special interest. The children were sent home after operation and were nursed by their mothers under the directions of one of the sisters. Both healed by first intention, the sutures being removed on the seventh day.

Fig. 3 is a reproduction of a photograph of the patients taken in the early part of October. At that time they were all well, as they are now. They were shown to the Glasgow Medico-Chirurgical Society at a meeting on Nov. 2nd, 1900.

FIG. 3.

CASE 2. CASE 1. CASE 3.

Photograph of the three cases of cervical spina bifida after excision of the sacs. The patients at this date are aged four months, seven months, and seven months respectively. Operation—Case 1 three and a half months, and Case 2 and Case 3 two months previously.

Remarks.—Spina bifida is not uncommon in the cervical region (though, of course, comparatively much less frequent than in the lumbar region). I have operated on a number of cervical cases, one of which, operated on at the Children's Dispensary in 1896, was, like the three foregoing cases, successfully treated as an out-patient, the child being nursed by the mother under the directions of one of the sisters.

Of all cases of spina bifida, those of the cervical region are the best suited for post-operative treatment as out-patients. I have, however, treated cases of the affection in the lumbar region as out-patients after operation and have shown such cases to various medical societies. With properly selected cases I have found the results satisfactory. To insure success selection is less concerned with the infant than with the mother and her circumstances. Given a tiny infant the chances of success in the mother's care, provided she is intelligent and can devote the first few days entirely to nursing under specific instructions, are quite as good as in the wards of an average hospital. The ideal conditions such as may be obtained in private cases include nursing by the mother and by two nurses in addition.

It is not necessary here to detail the steps of the operation carried out in these three cases. Full accounts of the different methods which I have followed in cases of spina bifida and in cases of hydrocephalus may be found in a paper on the subject in the Glasgow Hospital Reports (vol. ii., 1900), and in an earlier paper read at the meeting of the British Medical Association in Edinburgh and published in the *British Medical Journal* (Oct. 15th, 1898) and *Pædiatrics* (1899).

Glasgow.

A CASE OF FRACTURE OF THE STERNUM.

BY J. SACKVILLE MARTIN, M.D. EDIN., M.R.C.S. ENG.

A SHORT note on this uncommon variety of fracture may be of interest to readers of THE LANCET.

A man, aged 23 years, was working in the pit on Dec. 5th, 1900. He was leaning forwards, his body bent at right angles to the legs, when a truck which was passing crushed him against a "stack" or upright piece of wood used in keeping up the roof of the gallery. The direction of the force applied was laterally from shoulder to shoulder, and from the fact that his position caused the shoulder to drop forwards the force would naturally act anteriorly to the mid-axillary line. He complained principally of stiffness and soreness about the shoulder-joint and this led me at the time to overlook the condition of the sternum. Five days afterwards, however, I found a very definite projection over the left side of the manubrium sterni running vertically downwards. The stiffness of the shoulder had passed off, but any movement which involved bringing the left arm forwards caused pain. On pressing with one finger on the projection and the other on the first rib, crepitus could be elicited. I was inclined to diagnose fracture of the sternum, but being aware of its rarity, hesitated to do so without a further opinion. Mr. J. E. Platt, surgeon to the Manchester Royal Infirmary, to whom I sent the patient, confirmed the diagnosis and very kindly wrote to me stating that, in his opinion, the fracture started at the supra-sternal notch and ran downwards and to the left, reaching the edge of the manubrium below the attachment of the first costal cartilage. The detached fragment was somewhat displaced forwards. He also had a skiagram taken, unfortunately with a negative result.

Fractures of the sternum are rare and the form usually described in text-books is a transverse one caused by a heavy weight forcibly flexing the spine and doubling the trunk upon itself. In this case we have a crushing force acting laterally upon the sternum through the line of both clavicles. The clavicles form with the manubrium sterni an arc, and opposing forces applied to both extremities would tend to approximate them and to throw a strain on the centre of the arc. The sudden direct impact of the force through the clavicles combined with this approximation of the arc's extremities probably caused the fracture and would account for the forward displacement of the loose fragment. It is a matter for surprise that the clavicles should have remained uninjured. A fracture of the clavicle, or even a dislocation at the sterno-clavicular joint, would have been a more common result of such an injury.

It is of interest to note the small amount of disability caused by the fracture. The patient could perform any movements of the left arm five days after the accident and only those associated with the action of the pectoralis major caused him pain. The only treatment adopted was to keep the left arm in a sling, and on Jan 22nd the fracture

had quite healed and the arm could be used freely without causing him pain. There is, however, a definite ridge, the result of the deformity produced by the displacement of the fracture. I am indebted to Mr Platt for permission to make use of the information he so kindly gave me.

Leigh, Lancashire.

A CASE OF CEREBRO-SPINAL MENINGITIS.

BY FRANCIS RILEY, M.B., B.S. LOND., F.R.C.S. ENG.

IN view of the rarity of sporadic cases of this disease in England it is of some importance that individual cases should be put on record, and the following case presents several points of interest.

A girl, aged five years, who had previously been in good health except that she had been noticed to be lethargic in the mornings, was suddenly attacked with headache and vomiting followed by convulsions. No cause could be assigned except that she had knocked her head against the bed-post in the morning. The same evening the temperature was 103·5° F., and as it remained about the same

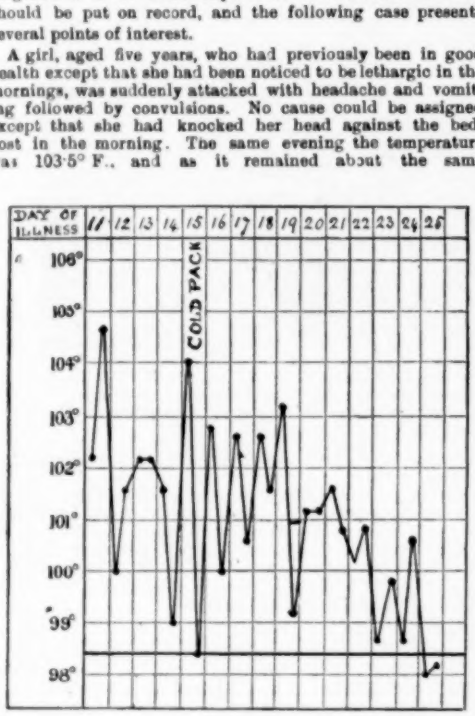

Chart showing the irregular temperature and transition from reversed to normal type.

for several days and all the organs were sound, the suspicion of enteric fever was entertained. On the fourth day it was noticed that the head was retracted and there was slight opisthotonos. The patient was drowsy but answered questions and was irritable when aroused. Both superficial and deep reflexes were abolished except for slight extension of the hallux on plantar stimulation (Babinski's sign). Painful sensation was apparently both diminished and delayed and the *tache méningitique* was easily obtainable. Only slight headache was complained of after the onset and both pulse and respiration were regular. Sitting up was evidently painful owing to spasm of the cervical muscles, when some difficulty in respiration became manifest. The abdomen was not retracted and no enlargement of the spleen could be made out. The bowels were obstinately confined. Strabismus or facial spasm was absent. On the fifth day a well-marked rash, partly erythematous and partly petechial (the former resembling the rose-spots of enteric fever), was noticed on the trunk and extremities and disappeared in the course of a few days. Pain was complained of in one knee and on the dorsum of the foot which was thought to be slightly swollen. On ophthalmoscopic examination the discs were found to be congested, and the pupils reacted slowly to light.

As the case progressed the temperature still remained high—on one occasion reaching 104·6°—and was markedly irregular. During the acute stage the morning reading was considerably higher than that taken in the evening (reversed type), but as the patient began to improve the temperature became lower and showed the normal evening rise. The pulse, regular at first, afterwards became irregular, while the respiration for a short time took on a Cheyne-Stokes type. There were slight ptosis of the left eyelid and photophobia. The reflexes, at first abolished, now became increased, and instead of anæsthesia there was hyperæsthesia. Retraction of the head became more marked, whilst the body was kept in a state of general flexion. There was much irritability, with grinding of the teeth and picking at nose and lips. The child became much emaciated and patches of chloasma appeared on the abdomen and flexor surfaces. The skin over the dorsa and soles of both feet was markedly glossy and shiny owing to the loss of trophic influence (glossy skin of Paget). Occasionally there was vomiting, with a clean tongue, and the urine, which was very dark in colour, was passed unconsciously and smelt very foul.

After about four weeks the patient began to improve, the retraction of the head became less, the pulse and respiration became regular, the hyperæsthesia disappeared, and cutaneous sensibility once again became dulled and the reflexes almost absent. The temperature returned to the ordinary type as convalescence became established and averaged between 99° and 100°. There were still occasional attacks of vomiting apparently brought on by trifling variations in diet or by sudden changes in the weather, especially when accompanied by thunderstorms. The total duration of the illness until the patient was able to leave her bed was three months.

The treatment consisted in the application of an icebag to the nape of the neck and during the severity of the fever another was applied to the vertex. A mixture containing bromide and iodide of potassium was given at first to allay irritability and to promote absorption, but as it sometimes provoked vomiting it was not persevered with. As the collapse became more marked small quantities of brandy were given by the mouth and heat was applied to the extremities, and when vomiting interfered with the retention of food rectal enemata were administered. The bowels were kept open by frequent small doses of calomel.

The origin of the illness was obscure, though it is noteworthy that the only other child in the same house contracted diphtheria three weeks after the onset. The surroundings and sanitation appeared to have been good, except for a tub of pig-wash at the rear of the house which was condemned by the medical officer of health. The diagnosis, which was first suspected to be typhoid fever, was placed beyond a doubt by the well-marked spinal symptoms and the appearance of the purpuric eruption which gives the disease the synonym of "spotted fever." Tuberculous meningitis was negatived by the absence of symptoms pointing to an extensive involvement of the cerebral meninges and of any tuberculous focus elsewhere, nor was any history obtainable of a discharge from the nose or ear as a possible cause of purulent meningitis. The presence of Babinski's sign in this disease has not, I think, been before recorded, and the reversed type of temperature is of interest. Herpes labialis, observed so frequently by Tourdes, von Ziemssen, and others, was absent. No definite arthritis, which is so frequently associated with cerebro-spinal meningitis, could be recognised, though pain was complained of in the knee and over the dorsum of one foot, which was thought to be slightly swollen. Headache was conspicuous by its absence, after the initial onset being only once or twice complained of. It is remarkable that after the dulness of intellect noticed in the early stage the mental faculties were preserved throughout and that the untoward sequelæ recorded by other observers, such as various paralyses and eye and ear changes, did not occur, although the emaciation was profound and only gradually recovered from.

Sale, Manchester.

SOCIETY OF APOTHECARIES OF LONDON.—At the recent examination held by the Society of Apothecaries for assistants, out of 83 candidates only 31 passed. The examination showed very superficial knowledge on the part of those who failed

FOUR CASES IN WHICH PAIN WAS RELIEVED BY SUPRARENAL EXTRACT.

BY E. A. PETERS, M.D., B.C. CANTAB.,
SENIOR CLINICAL ASSISTANT, THROAT HOSPITAL, GOLDEN-SQUARE.

IN spite of the extensive medical literature of the present day it is noticeable that a very small amount of matter dealing with the relief of the pain of cancer exists. The text-books usually instruct that such cases should be treated with rest, nourishment, and antisepsis and remark that morphia locally or hypodermically will be required: and yet few subjects have caused the practitioner of medicine more continued anxiety and trouble. Numerous are the operations which have been devised to eradicate carcinoma, but the requirements of a great many inoperable and recurrent cases are relief of pain without causing bodily harm. In fact, so great are the sufferings of a patient with a malignant ulcer that it is held to be good treatment, even when radical operations hold out little hope of permanent cure, to suggest surgical treatment with the object of avoiding the otherwise inevitable ulceration. It is agreed that hypodermic injections of morphia are by far the most potent in giving relief to this pain, and though such treatment may be deferred for some time it is eventually used. This use of morphia signalises the last stage, for the effect of morphia on the nutrition of the body is essentially bad. Morphia is destructive (Halliburton); it causes degeneration of the nerve cells and dissipation of Nissl's bodies similar to that brought about by extreme exertion or chloroform narcosis. The nausea, dyspepsia, and lassitude consequent on a dose of morphia are indicative of the same process. Under such circumstances the body has to contend with two poisons, cancer and morphia. Undoubtedly morphia must be used in many cases, but I would urge that local application of suprarenal extract will in many cases postpone the necessity for the narcotic drug.

When liquid suprarenal extract is applied to a part of the respiratory, intestinal, or genito-urinary or other mucous membrane a pallor spreads over the inflamed surface and usually obtains for two hours; even the pain of suppurative ophthalmia is eased somewhat. The pain of subacute inflammations, such as those of cancer and tuberculosis, is quickly and safely eased for two or more hours. Application of the extract once or twice in the 24 hours has reduced the usual pain to a minimum (see Case 1) and apparently the inflammatory condition subsides somewhat (see Cases 1, 2, and 3). The ultimate effect of suprarenal extract on these forms of inflammation cannot be stated; personally I have seen nothing untoward follow its use. Of the various preparations of suprarenal extract which are upon the market the liquid preparations have proved unsatisfactory in my hands. Burroughs and Wellcome have endeavoured to manufacture a reliable "soloid," but except in the case of the earlier specimens these attempts have failed. But an efficient preparation can at any time be prepared from the tabloids of the dried gland produced by that firm. Two tabloids, representing 10 grains of fresh gland, are powdered and placed in a test-tube with 100 minims of boiled water. The test-tube is stood in boiling water for from 10 to 15 minutes. The contents are then filtered; the opalescent filtrate presents a 10 per cent. watery extract, has a specific gravity of 1032, and contains about 2 per cent. of sodium chloride. If required solid cocaine hydrochlorate can be conveniently added to the cooled filtrate. This extract varies widely in keeping properties, and though after the addition of a little camphor it may keep some days it is better to prepare fresh sterile solutions. Some of the 10 per cent. watery extract has been injected subcutaneously into rabbits with no marked ill-effect until a proportion was reached when the 10 per cent. extract of one gramme of suprarenal gland was injected into 1000 grammes of rabbit; at this point a diminution of weight and fall of rectal temperature were noted. When the amount of extract was doubled a great fall of temperature occurred, together with a tendency to sepsis, local gangrene (compare ergot gangrene of our forefathers), and death. If the same proportion holds good in man it would be necessary to inject 22 ounces into a ten-stone man before ill-effects were produced. The fresh glandular extract was not used in any of the above described cases.

The following cases show that the application of a suitable suprarenal extract may be of great benefit in allaying the pain of cancer and other forms of chronic inflammation without any apparent deleterious effect.

CASE 1. *Recurrent scirrhus of mamma.*—The patient, a female, aged 39 years, was seen on July 13th, 1900. The left breast had been removed 12 years ago by Lord Lister. The patient was subject to "eczema." Recurrence commenced four years ago and there was now a red botryoidal mass adherent to a rib with an ulcer on each boss. The ulcers wept slightly. There was some œdema of the surrounding tissues and three dark blue patches. Five shotty and tender glands could be recognised in the axilla. The patient complained of pain around the growth in the axilla and down the back of the forearm to the tip of the middle finger. A weak permanganate lotion and vinolia cream had been used for some time as a local application. Orthoform dusted on relieved the pain, but this treatment was cut short by a severe eczematous dermatitis which spread over the greater part of the body causing some fever. The patient recovered from this in a week's time but complained that the pain due to the growth was becoming worse. On the 21st to ease the pain I prescribed five minims of nepenthe; it had the effect of only partially moderating it. At the end of the week I omitted the nepenthe as the digestion was completely upset. 4 per cent. cocaine was painted on but it did not insure a good night's rest. On Sept. 26th the patient was in fair health, but she complained of being kept awake by the pain around the growth and down the back of the arm and hand. 10 per cent. suprarenal lotion was painted on at 9 P.M. and it gave her freedom from consciousness of the presence of the growth till 6 A.M. She slept well. On Dec. 24th the patient was better. Her tongue was clean and her digestion was active. She went out occasionally for a short walk. The pain was severe at times, but it was decidedly less so than it had been previously to the use of suprarenal extract. The growth was paler and appeared smaller, but it was impossible to say if the growth or the glands were really diminished in size. The suprarenal lotion had been used night and morning for three months and was as effective as ever and a night's rest was secured by the use of the extract.

CASE 2. *Stricture of the œsophagus (? cancer).*—The patient in this case was a woman who came to me on Oct. 7th, 1899, complaining that for three months she had been troubled with mucus which she vomited up with some difficulty before she could effectively swallow food. Solid food always gave trouble and caused pain in the region of the xiphoid process. A No. 20 conical bougie passed, but was grasped near the cardiac orifice. The patient asserted that the bougie on touching the constricted part gave rise to pain such as she had previously experienced. As the patient had not improved after a month of medicinal treatment a No. 21 bougie was employed and it did not enter the stomach. The next note of the patient's case is dated Sept. 5th, 1900. The patient had had iodide of potassium and other drugs which had not prevented the progress of the dysphagia. She could take fluids, and this only after getting rid of the mucus, which collecting induced pain passing from the xiphoid process through the liver to the right side and the axilla. A No. 20 bougie was passed once or twice a month under gas; the mucus ejected was frequently stained with blood. The patient complained that her nights were bad on account of the pain. On Oct. 3rd, 1900, the patient looked ill and she ascribed this to her disturbed sleep. The organs were all apparently healthy. She was directed to sip slowly one teaspoonful of the 10 per cent. suprarenal extract before going to bed. On Dec. 20th the patient was obtaining complete relief by the use of the suprarenal extract and sleeping free from pain till from five to six o'clock in the morning, when she would eject the mucus. She told me that she omitted the suprarenal extract one night and slept well that night. A No. 20 bougie was passed and it induced a return of the old pain, which yielded at once when the suprarenal extract was sipped.

CASE 3. *Tuberculosis of the larynx* (under the care of Dr. Lambert Lack, who has kindly allowed me to publish the notes).—The patient, a man, aged 34 years, was seen on July 17th, 1900. There were œdema and ulceration of the arytenoid projections and the pain was great.

Dr. Lack scraped the affected part and constitutional treatment was instituted. Since then lactic acid paint had been freely used, but the sharp pain passing into the ears was still a source of trouble on breathing, coughing, or swallowing. On Dec. 4th 10 per cent. suprarenal extract was sprayed on at 4 P.M. The patient subsequently reported that the throat was free from soreness for two and a half hours, even on coughing. A dull pain returned, but the sharp pain was absent during the subsequent week. On Dec. 11th the patient described a dull ache in the throat and said that if his appetite would only improve he would get on.

CASE 4. *Periodontitis.*—The patient in this case, when seen on Nov. 10th, 1900, was suffering from periodontitis associated with considerable pain, which came on in paroxysms with shortening intervals. Cocaine, iodine, carbolic acid, and chloroform were all applied locally with little effect. A flat pledget of wool one and a half inches by one inch soaked in 10 per cent. suprarenal extract and kept tucked up between the lip and the gum gave great relief. The pledget had to be renewed every two to six hours. The gum felt dead after the application. A small abscess subsequently formed.

Cadogan-place, S.W.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTES OF A CASE OF COMPLETE INVERSION OF THE PUERPERAL UTERUS.

BY GEORGE ELDER, M.D. GLASG.,
CONSULTING SURGEON, SAMARITAN HOSPITAL FOR WOMEN, NOTTINGHAM.

A PALE, nervous young primipara was delivered by Mr. J. T. Knight of Carlton with forceps in the absence of his partner, Dr. Sutherland. There was but little hæmorrhage; the placenta was easily expressed and the uterus was afterwards felt firmly contracted. The patient's recovery was uneventful until July 31st, so much so that for several days she had been up in her bedroom, on which date Dr. Sutherland had an urgent summons to go and see her as she had been taken suddenly ill. He found her in bed evidently suffering from severe shock, looking more than usually pallid with a very feeble and running pulse. There was also a slight bloody vaginal discharge. After a couple of days' rest she felt so improved that she was anxious to get up, but to this Dr. Sutherland would not consent without previously satisfying himself of her condition by a vaginal examination. This was done on August 3rd and to his surprise he found the uterus completely inverted and lying in the vagina. He thereupon tried to replace it but without effect. On the following day I saw her with him, and as the first attempt to replace the uterus had been so recently made and as urgent symptoms were absent it was thought better to wait a few days before making a second attempt. In the meantime hot antiseptic douches were to be used twice a day and the patient was to lie with her pelvis elevated. On August 11th, there being no amendment in the conditions, the patient was placed under an anæsthetic by Dr. Sutherland, and, with Mr. Knight assisting, the uterus was without much difficulty replaced by manual pressure, and to prevent recurrence the vagina was well packed with iodoform gauze. For the week following she kept her bed, and at the end of this time, her general condition being satisfactory and the uterus being normal in position, she was allowed to get up.

I am indebted to Dr. Sutherland for the above brief record of the case, to which I should like to add a few remarks which suggest themselves. Although this accident occurs, according to authorities, only once in about 144,000 cases of labour, yet, inasmuch as it is a danger to life which may present itself any day in the practice of every practitioner, it seems to me that the recital of every case must of necessity be of value. Given the necessary conditions for it—namely, an increased uterine cavity and general or limited relaxation of its walls—it is found that this accident may occur from several causes, singly or combined: (1) notably and mainly from forcible traction of the cord, although both Tyler Smith and Matthews Duncan held that as a causative factor this was much overrated; (2) from injudicious and violent abdominal pressure; and (3) from irregular muscular action. It is to this last category, which is obviously out of the control of the medical man, that I believe the above mentioned case to belong; and although the full extent of the mischief did not declare itself until 18 days after labour, it is more than possible that a minor degree of it began then, and this acting as a foreign body in the uterine cavity stimulated the expulsive efforts which in time, assisted by the patient getting up out of bed, completed the process. Another point worthy of note is the small amount of bleeding observed as opposed to many recorded cases where death has been brought about by this cause alone. Manual re-position is generally sufficient for the treatment of recent cases, although one must not lose sight of the fact that the soft uterine tissues are peculiarly liable to bruising, with sepsis as a possible sequel, and to perforation and rupture.

Nottingham.

NOTE ON AN ANOMALOUS FORM OF QUININE ERUPTION.

BY G. NORMAN MEACHEN, M.B., B.S., L.R.C.P. LOND., M.R.C.S. ENG.,
SENIOR RESIDENT MEDICAL OFFICER, TOTTENHAM HOSPITAL, N.

A MARRIED woman, aged 23 years, was admitted into the Tottenham Hospital on Jan. 3rd, 1901, for pain and swelling of the left leg due to a chronic periostitis of the tibia. As she was pale and had had some fever, one grain of the sulphate of quinine was given with half a grain of the sulphate of iron in a mixture every four hours. Five days later numerous scattered reddish papules appeared on the face, shoulders, and extensor surface of the left leg. In the latter situation the papules, which were elevated above the surface, soon became vesiculo-pustular and showed some tendency to a circinate grouping. Itching was not a prominent feature and the pustules dried up and became absorbed without breaking, leaving a brownish discolouration. There was no faucial angina and the only other symptom of cinchonism present was headache.

The above case is instructive as showing that the quinine exanthem may, though rarely, exhibit itself in a pustular form. Morrow[1] states that although the prevailing type of the quinine eruption is erythematous, yet exceptionally it may be eczematous or purpuric. In two out of his 60 cases it was "vesicular." Moreover, the toxic effects of quinine as manifested in the skin are more commonly generalised, yet Elliott[2] of New York relates a case in which a bullous eruption due to quinine appeared on the feet. In this case it was on the leg that the rash was first noticed. I am indebted to Dr. Hooper May for kind permission to publish these notes.

Tottenham, N.

NOTE ON THE ADMINISTRATION OF AN ANÆSTHETIC TO A PATIENT WITH DOUBLE ABDUCTOR PARALYSIS.

BY OTTO F. F. GRÜNBAUM, B.C. CANTAB.

A RATHER thin, pale man, aged 24 years, was admitted to the West London Hospital for hæmatocele on Dec. 10th, 1900, under the care of Mr. Keetley, when an operation was deemed advisable. Upon the operation table the patient volunteered the information that he thought that his heart was weak, because he became breathless on running. (Many patients make these remarks under similar circumstances.) He was assured that his heart had been examined and showed no signs of disease and the administration of the anæsthetic was begun. The patient took gas well; he passed under the influence of ether and had nearly lost the cyanosis due to gas when he ceased breathing. A gag was inserted and his tongue was drawn well forwards, but,

[1] Drug Exanthemata, New York Medical Journal, 1880.
[2] Journal of Cutaneous and Genito-Urinary Diseases, New York, 1888.

no signs of voluntary respiration occurring, artificial respiration was resorted to without delay. Since the pupils continued to dilate while the passage of air into the lungs was accompanied by considerable noise, tracheotomy was suggested but not performed because the nature of the puff of air pressed out of the thorax during artificial respiration proved that there was a satisfactory air entry. Five minims of liquor strychninæ were injected. Two minutes later the pupils began to contract and after six minutes voluntary respiration with loud stridor began. Shortly afterwards the patient regained consciousness and recovered sufficiently to sit in a chair before the fire. He continued to gasp for breath, but showed that he had returned to sense and sensibility by a refusal to inhale any medication. The stridor gradually decreased and 40 minutes later it had disappeared. The following day the patient was feeling quite well. The character of the dyspnœa which occurred under anæsthesia suggested some laryngeal stenosis. On questioning the patient further about his breathlessness on exertion it was elicited that any exertion produced noisy stridulous breathing and, further, that this difficulty had existed as long as he could remember. On the 14th Dr. J. B. Ball was asked to examine the patient. He reported that both vocal cords lay near the middle line and on deep inspiration approached each other slightly, still further narrowing the glottic aperture. The condition appeared to be that of complete bilateral abductor paralysis. The appearance was not exactly typical as there was a slight obliquity in the line of the glottic aperture.

The object of recording the case is to add to the list of pathological conditions which may lead to death during the administration of an anæsthetic, but which (without exceptional examination), may not give any evidence of their existence during life or on the post-mortem table, however minute an investigation be made.

Ladbroke-grove, W.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

SAMARITAN FREE HOSPITAL.

A CASE OF HYSTERECTOMY FOR UTERINE FIBROID IN THE FIFTH MONTH OF PREGNANCY; RECOVERY.

(Under the care of Mr. ALBAN DORAN.)

A WOMAN, aged 40 years, a patient of Dr. J. Reid of Hammersmith, was admitted into the Samaritan Free Hospital on Sept. 24th, 1900, under the care of Mr. Alban Doran, on account of an abdominal tumour. She had been married for two years and had never been pregnant, but no period had been seen since May 25th, 1900, though she was quite regular up to that date. In April she strained herself when lifting a weight, and then for the first time she noticed a tumour. On Sept. 24th Mr. Doran examined her and discovered a firm, irregular mass at the level of the umbilicus and to the left, another hard mass in Douglas's pouch, and a softer tumour in the lower part of the abdomen, covered by intestine. All three were continuous, moving together. The cervix was high up under the pubes. The patient was sent home, it being intended to determine how far the growth would interfere with the advance of the pregnancy. On Oct. 9th the tumour was much larger, the souffle being heard plainly; the upper mass had shifted from the left at the umbilical level to the right, some way above the umbilicus. The cervix had risen still higher above the pubic arch, whilst the mass in the pelvis was not only larger but was now fixed. The breasts were getting full and an areola had developed around each nipple. Thus the fibroid was interfering seriously with the pregnancy.

The patient was readmitted into the hospital on Oct. 28th, when the pelvic mass was still more fixed. To attempt reduction would be dangerous, as the soft uterus lay between the hard pelvic mass below and the equally resistant mass above and might thus have been ruptured. Dr. Hubert Roberts examined the patient and was of opinion that hysterectomy would be advisable at once. Removal of the fœtus through the vagina would, considering the relations of the parts concerned, involve the danger of rupturing the uterus or setting up inflammation of the tumour. As for allowing the pregnancy to go on till term Cæsarean section would then be necessary, but the pelvic mass would by that time be very harmful to structures around it and pressure symptoms were already beginning. Delivery through the vagina at term would be impossible. The case was explained to the patient and she preferred immediate operation.

Mr. Doran operated on Nov. 1st, Mr. Butler-Smythe assisting and Dr. G. B. Flux administering chloroform. On opening the abdomen the pregnant uterus came in view. The upper mass was larger than it appeared on palpation; it reached upwards and backwards behind intestine, almost touching the liver. The uterus was raised and then the pelvic mass came into view; it sprang from the back of the uterus just above the cervix. With a little manipulation Mr. Doran succeeded in getting the pelvic mass up; it was firmly fitted into the pelvic cavity. The cervix was narrow. The ovarian and round ligament and uterine arteries on both sides were secured and the uterus was amputated. The patient's pelvis was then elevated, so that the stump could be easily kept in view whilst the flaps were united by suture. Lastly, the abdominal wound was closed.

Recovery was uninterrupted and the patient was discharged on Nov. 29th. On Feb. 1st, 1901, she was in excellent health and free from any discomfort. The uterus, with membranes intact, was sent to the Museum of St. Bartholomew's Hospital and has been mounted so as to show the fœtus and the relative position of the two myomatous growths.

Remarks by Mr. ALBAN DORAN.—Pregnancy in a uterus affected with myoma is specially serious when the new growth is situated in the posterior part of the lower segment or in the cervix for during pregnancy a fibroid tends to grow rapidly. Over 12 years ago I demonstrated the marked hyperplasia which occurs in the muscle-cells of a myoma in a monograph published in the Transactions of the Obstetrical Society of London.[1] When the growth springs from the fundus pregnancy may continue to term and labour may end spontaneously, whilst during the puerperium the tumour, homologous histologically with the uterus, will share more or less in the process of involution; but when the tumour springs from the back of the lower segment of the uterus pregnancy cannot proceed normally, pressure symptoms set in early, and operative interference becomes necessary. These are the cases where the presence of a fibroid is often unknown until revealed by the complications which arise during gestation. I have recently operated upon the above case, where I had he great advantage of being able to watch the pregnancy until it became evident that a tumour lay below and behind the uterine cavity and could not be pushed up out of the pelvis which it blocked.

Several somewhat similar cases have been recorded. McMurtry[2] operated on a woman, aged 34 years, in the fifth month of pregnancy. The only abnormal symptom observed by the patient before this pregnancy was menorrhagia, which had existed for two years. The pelvis was blocked by a fibroid in the posterior wall of the uterus, pressing on the rectum and bladder; the cervix was out of reach, high up under the pubes. Retro-peritoneal hysterectomy was performed with success. Cripps's[3] patient was 44 years of age, the menstrual history was irregular, but the pregnancy had lasted over two months, the pelvis was blocked, and the cervix was high up anteriorly. In amputating the uterus, though the membranes were not ruptured, much dark, old clot escaped from the uterine cavity. The operator therefore flushed out the peritoneum and then for a reason not explained in the report passed a Keith's drainage-tube into Douglas's pouch. The operation was a retro-peritoneal hysterectomy and the specimen, like my own, is preserved in the museum of St. Bartholomew's Hospital. Tauffer's case[4] was somewhat similar. The patient was a nullipara, aged 27 years; several fibroids

[1] On Myoma and Fibro-myoma of the Uterus, Transactions of the Obstetrical Society, vol. xxx., p. 410. See especially Plate II., Fig. 3, representing myoma of the pregnant uterus.

[2] Fibroid Tumours of the Uterus complicating Pregnancy, New York Medical Journal, Sept. 1st, 1900, vol. lxxii., p. 353.

[3] Ovariotomy and Abdominal Surgery, Case 83, p. 501.

[4] Monatsschrift für Geburtshülfe und Gynäkologie, November, 1900, p. 658.

occupied the uterine walls, one blocking the pelvis. Retro-peritoneal hysterectomy was successfully performed in the middle of the fourth month. Horrocks[5] removed by retro-peritoneal hysterectomy a uterus in the fifth month of pregnancy where the fibroid, which caused pressure symptoms, lay chiefly to the left of the uterine cavity. Before operation he diagnosed this condition by distinguishing on palpation a bilobed tumour, the right lobe being the softer and bearing a ridge formed by the round ligament, Fallopian tube, and ligament of the ovary. As will be explained, the tumour was not of the same type as those in the four cases already noted.

The case of Gemmell,[6] of Liverpool, was different surgically from any of the above. The patient was a nullipara, aged 30 years; retention of urine and abdominal pain came on suddenly at the third month of pregnancy. The pelvis was blocked by the tumour and the cervix lay high up in the pelvis and to the left. The abdominal cavity was opened and the pelvic tumour was drawn up to the incision, thus rotating the pregnant uterus to the left. The tumour was situated on the posterior wall of the uterus above the level of the internal os and was of the size of a large orange; it was enucleated easily. The bleeding was free but was controlled for a time by sutures; free oozing set in, however, so that the abdominal wound had to be enlarged; then the uterus was brought out and all bleeding points were controlled. The pelvis was flushed and very rightly no drainage was employed, the wound being closed. The pregnancy went on till term; the forceps was found necessary to deliver the child. The mother did well. This case may be instructively compared with that of Horrocks, already noted above, where the operator found that the attachment of the tumour to the uterus was more by vessels and loose connective tissue than by perfect continuity so usual in fibroid disease. After removal it was enucleated from the left broad ligament with the greatest ease. Horrocks, therefore, states that in future he will begin on the tumour side so as to make sure whether it could be removed alone or not, so that the gravid uterus might be saved. Gemmell's enucleation seems to have answered well, but such a procedure is not always feasible and when so the presence of large veins renders it dangerous in a pregnant subject even when the most approved precautions are taken. Horrocks's tumour, on the other hand, was in the broad ligament, really separate from the uterus; still, a conservative operation like enucleation may be more dangerous than hysterectomy when pregnancy has advanced beyond the second or third month.

Two cases where the conditions differed in other respects from what existed in my own case are worth recording. Keiffer[7] operated on a case where a fibroid mass reached to the epigastrium and blocked the pelvis, flattening the cervix against the pubes. Pregnancy had advanced to the fifth month. Retro-peritoneal hysterectomy was performed. The pregnancy had developed in a retroflexed uterus, the fundus being occupied by the mass which filled the pelvis. The antero-superior part of the uterine wall formed the uppermost part of the tumour, whilst only a small part of the inferior segment had been able to dilate so as to hold the ovum. This case is instructive in relation to hysterectomy for fibroid disease in pregnancy; it shows that the possibility of retro-displacement—perhaps with no new growth at all—must be taken into account in diagnosis. As there was some shock after the operation Keiffer gave the patient sparteine, a compound which I have recently found very beneficial after severe abdominal operation.

I may note William Duncan's case[8] where the fibroid occupied the cervix. The patient was a multipara, aged 38 years; the tumour had been noticed for two years and irregular hæmorrhages followed an abortion 18 months before operation. The pregnancy had reached the fifth month. Duncan prefers retro-peritoneal hysterectomy to pan-hysterectomy, but in this case there was no alternative but to remove the entire uterus.

Thorn of Magdeburg[9] recently operated on a woman, aged 41 years, who had been married seven months previously. The periods had ceased for three months and acute symptoms, such as are seen in twisting of the ovarian pedicle, set in. At the operation the uterus was found to be twisted 180 degrees on the cervix, through a heavy myoma in its anterior wall. The tumour and a smaller myoma in the fundus were enucleated, and pregnancy went on undisturbed, but no mention is made of the labour.

The operative treatment of uterine fibroid late in pregnancy lies beyond the subject of these remarks. Dr. Amand Routh's recent report of a case of retro-peritoneal hysterectomy at the thirty-fourth week[10] is of high interest; the mother and child were saved. The discussion which followed the reading of this paper deserves perusal. The whole question of pregnancy and labour complicated by fibroid disease is ably discussed in a recent treatise by Dr. John Phillips.[11] He shows under what conditions a fibro-myoma may have no prejudicial effect on gestation and parturition and concludes by laying stress on the point to which I drew attention at the beginning of my remarks—namely, that whilst fibroids of the anterior wall are of little import those on the posterior are serious. The anterior segment is shorter and ascends during labour; the posterior is longer and descends. When, as in my case, there is a myoma in the lower part of the posterior segment not only is dystocia certain but troubles begin long before term.

[5] Transactions of the Obstetrical Society, vol. xlii., 1900, p. 242.
[6] THE LANCET, Nov. 17th, 1900, p. 1413.
[7] Guillaume and Keiffer. Bulletin de la Société Belge de Gynécologie et d'Obstétrique, vol. ix., No. 5, 1900, p. 120.
[8] A Case of Pregnancy complicated by Fibrous Tumour of the Supra- and Infra-vaginal Cervix, THE LANCET, March 3rd, 1900, p. 613.
[9] Torsion des graviden Uterus durch ein subseröis-intramurales Myom, Monatsschrift für Geburtshülfe und Gynäkologie, vol. xii., 1900 p. 775.
[10] Porro-Cæsarean Hysterectomy with Retro-peritoneal Treatment of the Stump in a Case of Fibroids Obstructing Labour, with Remarks on the Relative Advantages of the Modern Porro Operation over the Sänger-Cæsarean in most other Cases requiring Abdominal Section, Transactions of the Obstetrical Society, vol. xlii., 1900, p. 244.
[11] The Treatment of Pregnancy and Labour complicated by Fibro-myomata, King's College Hospital Reports, vol. vi., 1900, p. 27.

Medical Societies.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

Intestinal Sand.—The Limitations of Enterectomy.

A MEETING of this society was held on Feb. 26th, Dr. F. W. PAVY, the President, being in the chair.

Sir DYCE DUCKWORTH and Dr. ARCHIBALD GARROD related a case in which Intestinal Sand was present and was accompanied by diarrhœa. Having commented on the infrequency with which such cases had been reported in England as compared with continental records Sir Dyce Duckworth and Dr. Garrod sketched the course of the illness of their patient, a married woman, aged 33 years, living in healthy surroundings save for the supply of water, which was hard, and contained organic impurities. The family history showed that the patient came of a gouty stock and the patient had, after her last confinement, suffered from peri-anal eczema accompanied by looseness of the bowel. The present ailment began in January, 1900, with a very intractable diarrhœa accompanied with internal rumbling and purring noises, there being six or eight loose motions in each 24 hours. In the middle of February the patient took to her bed and was ordered an exclusively milk diet with lime-water. This treatment lessened the diarrhœa to three or four motions each day, sometimes attended with the passage of mucus. On March 18th sand was discovered in the motions, and it was found subsequently in all in which it was looked for. Early in May Sir Dyce Duckworth saw the patient with Dr. Garrod. She was pallid and sparely nourished. The thoracic organs were healthy. On examining the abdomen it was found that the colon and its sigmoid flexure were, though empty, too readily palpable and apparently thickened in their walls. The right kidney was moveable. There was a slight degree of pyrexia at this period, the temperature rising occasionally to 100° F. or a little above this. Specimens of the sand were obtained and submitted to examination. It sufficed to say that it much resembled at first sight a deposit of uric acid, being of reddish-brown colour and finely gritty. It was insoluble in cold and boiling liquor potassæ and readily soluble in boiling nitric acid. Under a low power of the microscope particles of various shapes and sizes were seen, of a brilliant

reddish-brown hue, and translucent. The patient was confined to bed and kept on milk diet. For medicine salicylate of bismuth and bicarbonate of sodium were given in mixture. Under this treatment the diarrhœa was somewhat checked and the general health improved. In July the patient was advised to go to Plombières. There she took baths and had rectal douches and drank the water in small quantities. All vegetable food was withheld and digestion was found to be much more comfortable without it, as it caused immediate distension. She lost 10 pounds in weight while at Plombières. The next month was spent in Folkestone with some benefit and some weight was regained. In November she was rather pallid and languid, was easily tired on exertion, but had regained her usual weight (9 st. 2 lb.). The large bowel no longer appeared thickened, as it did six months previously, but there was tenderness on pressure about the splenic flexure of it. There was still a looseness of the bowel, from two to four actions occurring daily, but no sand was passed. Her diet was altogether of animal food, and a little whisky was taken with one meal. The urine was turbid with lithates and deposited uric acid. The tongue was large, flabby, and thinly grooved. A mixture with liquid extracts of cinchona and bael and tincture of cinnamon was ordered, and milk with natural seltzer water was added to her diet. The catamenia were regular. She returned home about the middle of the month. This case presented most of the characters that had been described in the few instances of the disorder that were already on record. It was, however, remarkable for the little pain which was experienced. In most examples of enteric lithiasis this appeared to be a marked feature, occurring in paroxysms, lasting several hours, somewhat akin to those associated with biliary and renal colic, and attended with much flatulent distension and vomiting. When washed and dried in the air the gritty material passed with the motions had the appearance of a fine sand. Its ground colour was a deep brown, with an admixture of pale or almost colourless particles. Under a low power of the microscope the individual granules were seen to have a great variety of shapes: some were roughly oval, some were oblong or even rod-like, and others, again, were of very irregular outline. Their colour varied from yellow to a warm brown. Some were translucent and others were opaque with the exception of their edges. Some had a finely granular appearance, but none of them showed any indication of crystalline structure. The air-dried sand lost considerably in weight at 100° C., owing to the expulsion of water from the organic basis, and the percentages of water and of organic and inorganic materials contained in it were found to be as follows: water, 12·40; organic material, 28·29; and inorganic material, 61·31. The inorganic residue left after combustion over a Bunsen's burner had a bluish-white tint and contained only a few dark particles. With the exception of such particles it was completely soluble in hydrochloric acid. This residue was submitted to analysis and was found to have the following composition: calcium oxide (CaO), 54·98; phosphorus pentoxide (P_2O_5), 42·55; carbon dioxide (CO_2), 2·20; and residue, containing traces of magnesium and iron, 0·47. The presence of magnesium was beyond doubt, but the quantity was extremely small. Calcium phosphate was clearly the chief mineral constituent.—Dr. A. CROMBIE thought that the affection must be more common in India than in this country. In the course of 10 years he had met with three cases in a hospital of 150 beds. The chief symptom was colic, which was sometimes intense and severe. The severity of the symptoms varied directly with the amount of sand present in the stools. In two cases immature acari were found present in the stools. He had once found sand in the stools of a pig.—Dr. T. J. BOKENHAM had met with intestinal sand in the stools of a young woman of neurotic temperament. Its presence was accompanied by colic and diarrhœa. The sand presented slight differences as compared with that in the case related by Sir Dyce Duckworth and Dr. Garrod.

Mr. ARTHUR E. BARKER reported two cases of Enterectomy bearing on the Limitations of the Operation. In the first case glycosuria was present and in the second five and a half feet of small intestine were removed for gangrene from a woman, aged 76 years. The first patient, a married woman, aged 58 years, was admitted into University College Hospital on Oct. 3rd, 1900, under the care of Dr. G. V. Poore. She complained at this time of great pain above the umbilicus and obstinate constipation. She was known to suffer from diabetes and later was found to have 6·6 per cent. of sugar in the urine. The pain had begun eight months previously and she was obliged to remain in bed from the middle of May to the end of June, 1900. The abdomen, on inspection, looked like that of a healthy woman who had borne many children (10). There was tenderness above and to the left of the umbilicus, and here an oblong tumour could be felt. It was decided to distend the stomach with air and then after evacuating it to inflate the colon. When the stomach was distended the tumour was a little less evident but was otherwise unaltered. On distending the colon, however, the tumour was pushed to the right iliac fossa and reduced in size. From this we argued that it was probably seated in the transverse colon and was associated with more or less intussusception of a ring-like growth of carcinoma into the distal portion of the bowel. The patient being in fair condition except for the glycosuria it was determined to attempt removal of the growth. Enterectomy was performed on Oct. 25th, 1900, four and a half inches of bowel being removed. The patient bore the operation well. The temperature remained below 100° F. for the first nine days, during which she steadily improved. There was no vomiting except a mouthful soon after the operation. Feeding by the rectum was kept up for four days and small quantities of fluid were given by the mouth from the second day onwards. Morphia was given, at first two or three times daily, but on the third day Mr. Barker began to administer codeine phosphate in one-grain doses hypodermically three times daily on account of the sugar in the urine, which was shown on the fourth day to amount to 6·6 per cent. From this day it steadily declined in amount until on the ninth day it was only 2 per cent. It diminished now still more rapidly when the codeine in the same amount was given by the mouth until the thirteenth day, when it disappeared altogether, only to reappear once to the amount of 2·8 per cent. on the seventeenth day, when it was found that the patient had surreptitiously eaten some sugar and also grapes. After this sugar was either totally absent or only found in a mere trace until the end of convalescence. Complete recovery ensued, only delayed by some local sloughing of omentum and mesentery. Thus in a condition of marked glycosuria repair of the intestine was shown to be possible. The second case was that of a feeble old woman, aged 76 years, who was admitted into University College Hospital on Jan. 10th, 1901. She had always enjoyed good health, but in 1870 had undergone ovariotomy. She had had no children. For two years she had had a large ventral hernia in the ovariotomy scar. On Jan. 8th and 9th she had not felt well and had complained of some pain in the abdomen but was not sick. At 10 A.M. on Jan. 10th the patient was seized with severe pain in the abdomen and vomited the contents of the stomach slightly bile-stained. The hernial tumour was tender and more swollen than usual. There was no more sickness and no motion or flatus was passed. Mr. Barker immediately opened the abdomen through the old scar and about a pint of dirty blood-stained fluid with a fishy odour gushed out. A loop of blackened small intestine was now seen of about three feet in length strangulated through the omentum. The gut had not entirely lost its lustre, but was very foul and distended tightly with dark blood-stained fluid. The peritoneum was not cracked, but hæmorrhages existed beneath it in several places, and a few of the subperitoneal venules were thrombosed. The extremely foul and fishy odour of the gut and fluid around it determined Mr. Barker to remove it as its recovery seemed hopeless. He therefore cut away five and a half feet of the bowel and anastomosed end to end as rapidly as possible. The time taken for this part of the operation was 44 minutes, the whole operation to the last stitch requiring 63 minutes. During the operation, which was well borne, 12 ounces of normal saline solution were slowly injected subcutaneously. The whole of the lower part of the abdomen was filled up with very hard fibroids of the uterus which reduced the amount of space for working very much. Recovery was uninterrupted. Commenting on these cases Mr. Barker observed that the first recalled what had been brought before the society concerning diabetic gangrene, in which condition, in spite of extensive arterial thickening, good results had been obtained. With regard to extensive excision of the bowel it seemed probable, from experiment and observation, that in younger patients who survived the operation a compensatory

hypertrophy might take place in the small bowel left behind which might make up for the loss. It seemed also to be suggested that the resection was better tolerated the lower down the intestinal tract it was done.—The PRESIDENT observed that it was important to distinguish between the alimentary and the composite forms of glycosuria. In the former the condition could be removed by diet; in the latter dangerous bodies, such as acetone, diacetic and oxybutyric acids, were present in the blood besides sugar. The surgeon could be helped greatly by the physician in these cases, and the latter form was to be taken as contra-indicating all but imperative operations.—Sir THOMAS SMITH recorded a case in which a man not previously known to be diabetic accidentally scratched his finger and within a week succumbed to septicæmia with gangrene of all four extremities.—Sir DYCE DUCKWORTH observed that in spite of the immense advantage of antiseptics surgeons would still need to be judicious in operating on diabetic subjects.—Mr. BARKER, in reply, said that in his first case he thought that the continuance of marked glycosuria during the first 10 days—the most important period of repair—was of interest.

MEDICAL SOCIETY OF LONDON.

Painless Pyonephrosis without Fever.—Fibroids of the Cervix Uteri.

A MEETING of this society was held on Feb. 25th, Mr. J. H. MORGAN, the President, being in the chair.

The PRESIDENT read a communication from the Home Secretary acknowledging the recent loyal address from the society to King Edward VII. and conveying His Majesty's thanks for the same.

Mr. ALBAN DORAN read a paper on Painless Pyonephrosis without Fever; nephrectomy; recovery. He brought forward this case because he had found that though painless calculous pyonephrosis was by no means unknown surgeons were too often induced when making a diagnosis in a case of painless enlarged kidney to exclude calculous pyonephrosis on the ground that that disease must always be more or less painful. The patient was a woman, 38 years of age, who had borne eight children, the youngest of whom was five and a half years old. Her husband had been subject to stricture and cystitis. For a few months she herself had suffered from purulent vaginal discharge. For a year she had noticed a swelling in the right side; it ached when she put on her stays, but when undressed she was always comfortable. There was no history of rigors, fever, hæmaturia, or renal colic. A large moveable kidney lay in the right flank; it was not tender. The urine occasionally contained albumin. Mr. Doran exposed the kidney by a Langenbeck's incision; it was extracted with the greatest ease; the circumrenal fat was quite healthy. The ureter was reduced to a thin cord. The left kidney felt slightly enlarged but of normal consistence. The patient was in good health three months after the operation. The right kidney had become a cyst containing about a pint of what Mr. Shattock reported as pure *pus laudabile* without a trace of tubercle. The upper part was dilated into an almost unilocular cyst through complete stricture of the ureter at its origin from the pelvis. The lowest calices were blocked by a small rough calculus in the infundibulum; they formed a bilocular cyst. In one dilated calyx a piece of mulberry calculus lay loose. In this case the infection was probably gonococcal and therefore ascending. A calculus blocked the lower calices but the cause of the blockage of the ureter was not so evident. It seemed that a calculus had caused it and then come loose. Similar cases were quoted. Mr. Doran observed that it was fortunate that the operation was not delayed till adjoining structures had been involved. He was of opinion, like Noble of Philadelphia, that the removal of a suppurating kidney allowed its fellow to do its work better. He considered that abdominal nephrectomy was preferable in such a case to the lumbar method. The absence of pain recalled the pathological researches of Mr. Bruce Clarke and certain clinical experiences of Mr. Henry Morris and Mr. Murray of Cape Town. The absence of fever was remarkable; the patient went about with one kidney converted into a bag of pus and yet appeared to be in excellent health and was able to attend to heavy domestic duties.—The PRESIDENT remarked that the case was almost unique; the absence of pain and fever with such a kidney was quite exceptional. He asked what had been Mr. Doran's experience of the internal administration of boric acid in conditions of urinary sepsis.—Mr. BUTLER-SMYTHE observed that the degree of pain was to some extent dependent on the patient's mental constitution. He asked why the ureter had not been dropped back into the peritoneal cavity after disinfection of its divided end; he had done this in two cases without any ill effect.—Mr. DORAN, in reply, said that following Mr. Knowsley Thornton's lead he preferred in suppurative conditions to treat the ureter as he had done, bringing it out of the lower end of the wound. He had known a lumbar abscess to follow when the ureter had been dropped back. In non-suppurative conditions the circumstances were different. He had found that the administration of 10 grains of boric acid three times daily had been followed in several cases by an improvement in the urine. Whether this was *post* or *propter* he could not say. The absence of fever might be due to the gonococci, which he thought were the cause of suppuration in this case, having perished.

Dr. A. H. N. LEWERS read a paper on Fibroids of the Cervix Uteri. He said that fibroid tumours arising in the cervix were much less common than those met with in the body of the uterus. The ordinary classification of the latter into interstitial, subperitoneal, submucous tumours, and fibroid polypi served equally well in considering fibroid tumours of the cervix. The present paper dealt only with interstitial and subperitoneal fibroids of the cervix. When these tumours originated in the cervix and reached the size of a cocoanut and upwards they became fixed, with fixation of the rest of the uterus as a consequence, and they also exercised pressure on the neighbouring parts, especially on the bladder and ureters. As a matter of fact, troubles connected with micturition figured prominently in the history of such cases. These tumours were generally solitary, whereas fibroids of the uterine body were most frequently multiple. The effect on menstruation varied; sometimes there was profuse menorrhagia; sometimes, however, menstruation was scanty or absent for many months at a time. When the tumour was interstitial and solitary the body of the uterus, practically unaltered, could be felt perched on the top of the tumour in the neighbourhood of the umbilicus. Four specimens from the cases fully recorded in his paper were shown at the meeting. In Case 1 there was a large solitary interstitial fibroid of the anterior cervical wall. In this case the patient had been rendered profoundly anæmic by menorrhagia. In Case 2 there was a large solitary interstitial fibroid of the posterior cervical wall. Difficulty in passing urine and at times inability to hold it, with pain about the lower abdomen and back, were the chief symptoms. Menstruation was scanty and only occurred three times in the two years before the patient came under observation. In both cases intra-peritoneal abdominal hysterectomy with formation of a cervical stump was performed and both cases did well. In Case 3 the tumour was a large subperitoneal fibroid weighing 9½ lb., springing from the back of the cervix and raising the peritoneum from Douglas's pouch, the whole of the left side of the pelvis and the left iliac fossa. At the operation there was no peritoneal cavity to the left of the incision below the umbilicus. The sigmoid flexure was seen above and to the right of the umbilicus. Abdominal hysterectomy, intra-peritoneal, was performed, there being enough cervix below the origin of the tumour to form a stump. This case also did well. In Case 4 there was a fibroid of the left side of the cervix, partly interstitial and partly subperitoneal. There were in this case also several fibroids in the body of the uterus and a small ovarian cyst on the left side. This case was treated by abdominal pan-hysterectomy and did well. As regards diagnosis, it was to be remembered that in all cases of large interstitial fibroid of the cervix the os uteri became dilated sufficiently to admit the finger, which then came on a part of the fibroid. It was important not to mistake the condition for that found in cases of submucous fibroid of the cervix or body of the uterus. The latter kind of fibroid could be safely treated from below, whereas in cases of large interstitial fibroid of the cervix an attempt to remove the tumour from below by *morcellement* would most probably either fail altogether or prove disastrous.—Mr. DORAN said that he approved of the operative measures that Dr. Lewers had adopted in his cases. The operation of pan-hysterectomy was dangerous when the cervix was dilated owing to the nearness of the ureters. As

a rule, when a fibroid was as large as a cocoanut it called for removal.—Dr. W. GOW thought Dr. Lewers's experience of cervical fibroids exceptional; they were usually set down as constituting about 3 per cent. of all diagnosable cases of fibroids. The physical signs were sometimes misleading, as one or other lip of the os uteri being stretched over the growth might simulate a polypi and tempt the surgeon to operate from the vagina, though he (Dr. Gow) agreed with Dr. Lewers that they should be operated on from above. He thought that the plan of leaving ligatures long and bringing them down into the vagina might lead to suppuration.—Dr. AMAND ROUTH said that it was important to know that cervical differed from corporeal fibroids in being almost always single. He had found help in diagnosis by passing the sound and locating its end through the abdominal wall. In one case he had tied one of the uterine arteries per vaginam. This had been followed by shrinking of the growth.—Dr. J. D. MALCOLM thought that in some cases the tumour could be removed per vaginam. He had so removed one cervical fibroid. He tied a few arteries and packed the cavity with gauze. The patient made a good recovery and had the advantage of retaining the uterus intact.—Mr. BUTLER-SMYTHE felt that such cases as Dr. Lewers had operated on would have fared badly in the hands of a beginner or with the older methods of operating.—Dr. LEWERS, in reply, said that he adapted the operation to each case. He had no objection to pan-hysterectomy in itself, but he agreed with Mr. Doran that it was dangerous when the cervix was dilated. He thought the plan of tying the uterine arteries exposed the patient to the risk of sloughing of the tumour. He thought that only the smaller cervical fibroids could be safely enucleated from below.

CLINICAL SOCIETY OF LONDON.

Exhibition of Cases.

A MEETING of this society was held on Feb. 22nd, Sir R. DOUGLAS POWELL, the President, being in the chair.

Dr. STCLAIR THOMSON showed a woman, aged 29 years, with a large irregular, soft Swelling in the Region of the Upper Half of the Right Sterno-mastoid. It was elastic and fluctuating and was neither adherent nor inflamed. She was positive that the swelling commenced just before her marriage (at the age of 27 years) as a small lump on the right side of the neck. This increased during pregnancy and became larger after her first child was born in September, 1900. Mr. Bland-Sutton had stated that congenital serous cysts of the neck were "always noticed at or immediately after birth." Possibly, as they originated below the deep cervical fascia, the one in this case escaped notice until it had made its way through this membrane and had become superficial.—In reply to Dr. A. E. T. LONGHURST Dr. THOMSON said that owing to the deep extensions of the growth he thought it better not to operate upon it.

Dr. J. S. RICHARDS showed a child, aged six years, whose Knee was Excised some time anterior to 1897. A flail-joint resulted and amputation was performed through excision of the scar (1898). The outer portion of the lower end of the femur continued to grow, while there was arrest of growth of the inner portion with resultant hook-like curve.

Dr. H. D. ROLLESTON (for Dr. F. W. BURTON-FANNING) showed a case of Progressive Myositis Ossificans. The patient was a male, aged 33 years. The disease began at the age of eight years. The patient's father had suffered from the same disease. The patient was married and had a daughter, aged seven years, who had not shown any sign of the disease. All four limbs were almost fixed, thus resembling Marie's rhizomelic spondylosis; the spine, except in the cervical region, was rigid from ossification of the muscles. Respiration was diaphragmatic and the patient could not sit down; he could just walk. Movement of the temporo-maxillary joint was greatly limited. The thumbs were natural but the great toes were markedly dwarfed (microdactyly). There was ankylosis of the terminal phalanges on the great toes and on the fourth toe on the right foot. There were exostoses around the knee-joints and one of the size of a marble on the left side of the chest. The ossification of the muscles was very widely spread.—In reply to the PRESIDENT'S question as to what treatment had been adopted Dr. ROLLESTON said that he had given thyroid without any good effect and that he was now trying salicylate of soda, but as yet he could not say that the patient had benefited from it.

Dr. HUGH THURSFIELD (for Dr. A. E. GARROD) showed a boy, aged 10 years, who came to the hospital for Enlargement of the Right Elbow and Left Knee which had been present for four years. He had had occasional attacks of abdominal pain, which passed off quickly, and returned only at long intervals. The swellings of the joints began four years ago and had steadily progressed. The boy had congenital ptosis and enlargement of joint, but was otherwise healthy and intelligent, though rather dull mentally.—Dr. ROLLESTON referred to a case that had been under his care where bursal swellings about the joints had been present from early life, and the patient had a cretin-like aspect, similar to that of the patient now under consideration. He thought that part of the abnormality might be caused by tuberculous infection.—Dr. WILLIAM EWART said that the patient appeared to be suffering from nasal obstruction.—Mr. JACKSON CLARKE thought that this case belonged to a class examples of which had been shown before the society as differing both from cretinism and achondroplasia.—Mr. T. H. KELLOCK asked whether the patient's heat-sense and reflexes had been tested. The ptosis and weakness of the limbs were such as were observed in chronic hydrocephalus.—Dr. THURSFIELD, in reply, said that tuberculosis had been suspected at first, but the general opinion of those who had seen the patient was that the condition was allied to cretinism though not identical with it.—The PRESIDENT proposed that it would be useful to submit the case to a committee.—This was carried.

Mr. BETHAM ROBINSON showed a case of Enlargement of the Right Foot. The patient was a male, aged 38 years, who 19 months ago had a definite injury to his great toe, followed by swelling, and the foot was said to have turned black. A few days afterwards lumps were noticed on the right shoulder, on the outer side of the right wrist, and over the right knee. These went away by themselves at the expiration of a few days. This was succeeded by great loss of flesh, for which he was dieted, but he did not know if his urine was abnormal at the time. There was some suppuration about the toe-nail, which had continued slightly up to the present date. He had now gigantism of the right foot, especially of the great and fifth toes and over the tarsus. There was thickening of the phalanges and metatarsal bone of the great toe, with some looseness and crepitus in the joints, also thickening of the fifth metatarsal. An x-ray photograph showed bony thickening about the phalanges and metatarsal bones of the first toe and over the same bones of the fifth toe. He had neuralgic pains about the leg and on both sides his patellar reflexes were feeble. There was no difference in the size of the legs or arms, but there was some neuralgic pain down the left arm. The crests of the ilia seemed a little thickened. There was a very marked bend in the lower cervical and upper dorsal region of the spine. The bones of the head and face were normal. The pupils responded actively to light.

Mr. RAYMOND JOHNSON showed a case of Actinomycosis of the Skin in the Parotid Region. The patient, a Russian, aged 31 years, went to University College Hospital on Feb. 2nd on account of a chronic inflammatory condition of the skin in the right parotid region of eight months' duration. There was nothing to note in his history. He formerly had to do with the buying and selling of horses. The affection began with pain and swelling of the posterior part of the right cheek. Early in August, 1900, and again six weeks later, abscesses were opened below the right ear, and since that time slight discharge had frequently occurred from small openings in the skin. There was now a patch of indurated and congested skin over the right parotid gland, which also seemed involved in the induration. The mouth could not be freely opened, but the jaws and the cavity of the mouth appeared to be healthy. At the time of the first examination there was a small sinus in the skin, from which a drop of pus was expressed which contained yellow grains, presenting under the microscope the characteristic appearances of the ray fungus. The surface of the skin in the affected area was rendered slightly irregular by the healing of numerous small openings from which pus had from time to time been discharged.

Dr. SIDNEY PHILLIPS showed a case of Acute Bronchocele. The patient was a man, aged 18 years, who had always been in good health till Christmas, 1900. He had a cold in January, 1901, but continued work. A small boil came on the right side of the face which was poulticed, after which it burst and soon healed, but the patient had pain and an enlarged gland behind

the right ear, to which iodine was applied by medical advice on Jan. 23rd. On the 25th he noticed a swelling about the thyroid upon the right side which had extended to the left side. About the same time he became breathless and his voice had altered during the last 14 days. There was now very great enlargement of the thyroid gland; both the lobes and the isthmus and a hard outlying nodule could be felt at the lower part of the left lobe; no thrill and no pulsation of vessels in the thyroid could be felt, but there was transmitted pulsation of the carotid artery, especially on the left side. The temperature was 100° F., and the pulse was from 90 to 160 per minute. There was a slight systolic (? hæmic) murmur at the apex. He had not noticed that his eyes had become prominent.—Dr. EWART regarded it as a typical case of thyroidism, and he referred to a case of a young man who was admitted into hospital on account of an aortic regurgitant murmur, and to whom he had given iodide of potassium with salicylate of soda and a little free iodine. A few days later well-marked symptoms of Graves's disease, in the bradycardiac form, developed. In such cases the cacodylate treatment was of benefit.—Dr. R. L. BOWLES related the case of a strong healthy man, who after a swim, during which he sustained a great fright, had sudden and considerable enlargement of the thyroid, so much so that he could not button his collar by two inches. He had heard from him some months later, when the patient stated that the swelling was rather smaller.—Dr. BEZLY THORNE had seen two sisters and their father, all of whom suffered from a similar condition. One patient, aged 18 years, had a high tension pulse and foul breath. He had treated the patient for gastro-intestinal auto-intoxication. He did not think that nerve-shock was an etiological factor.—Dr. PERCY KIDD recalled a case of acute bronchocele in an epileptic subject who had died from asphyxia caused by the enlarged thyroid.—The PRESIDENT asked if any cardio-vascular change had been observed. There was no thrill over the gland, as would probably have been present had the condition been Graves's disease.—Dr. PHILLIPS, in reply, said that he had shown the case on account of its acuteness, though the condition was one which was well known. He had suggested Graves's disease on account of the dyspnœa which did not seem to be due to the pressure.

Dr. PHILLIPS also showed a case of Tachycardia (? Graves's Disease). The patient, a man, aged 28 years, at the beginning of November felt tightness across the chest. Soon after the legs and feet swelled. On admission the pulse was 150 and very feeble, and there were œdema of the legs and much breathlessness that he could not walk many yards. Since then the heart-beat had become stronger, with evidences of dilatation and hypertrophy; the pulse-rate, which had persisted at from 140 to 160, with occasional temporary drops to 110 a minute, was extremely feeble, and was uninfluenced by digitalis or strophanthus or rest in bed. There was slight fulness of the right lobe of the thyroid, but no albuminuria, epistaxis, tremor, or proptosis; there was occasional slight pyrexia.—Dr. DE HAVILLAND HALL said that in his experience one of the commonest causes of tachycardia was influenza. Some of the worst cases that he had seen had been in medical men who had worked through their illness. He had found arsenic of more service than digitalis or strophanthus.—Dr. EWART attached importance to the increase of prevascular dulness which pointed to enlargement of the thymus.—The PRESIDENT said that the future history of the case would be of interest.—Dr. PHILLIPS, in reply, said that the hypertrophy and dilatation of the heart rather favoured Graves's disease. He had tried prolonged rest in bed and strychnine.

Mr. R. J. GODLEE showed a case of Injury to the Left Optic Nerve. The patient was a young man who had sustained an injury to the left side of the head from a fall from a bicycle. This was followed by paresis of the right side of the face and the right upper and lower extremities, deafness of the left ear, and blindness of the left eye. The paresis of the face and limbs had since much improved. The deafness was much less and probably depended upon injury to the tympanum. The blindness continued. There was evidence of injury to the optic nerve—i.e., optic atrophy and the pupil not reacting to light on direct stimulation but acting briskly when stimulation was applied to the right eye.

Dr. KIDD showed a case of Congenital Morbus Cordis and Pulmonary Regurgitation, in a woman, aged 21 years. There was slight cyanosis, especially of the conjunctiva, but no clubbing. The heart was enlarged on the right and left sides. There was a faint diastolic thrill in the second left space. The second sound was everywhere very loud, its maximum intensity being at the third left cartilage. At this point a short diastolic murmur following the second sound was audible at times. The first sound was everywhere feeble and generally doubled. The patient had had attacks of cardiac pain from childhood and had suffered from dyspnœa for three years, but there was no history of rheumatism, scarlet fever, or chorea.

Mr. R. P. ROWLANDS showed a Primary Chancre on the Skin of the Side in a single man, a brewer's drayman, aged 28 years. The sore on the side appeared five weeks ago. A papulo-squamous rash and sore-throat appeared a week ago. The sore was now as large as a half-crown, indurated, and discharging a thin serum. There were hard shotty glands in the left axilla and groin. There was a papular sore-throat. The patient had improved under treatment with mercury. There was no history of contagion. He leaned on his dickey at this spot and this might have determined the site of the sore.—Mr. CAMPBELL WILLIAMS mentioned that the sore had this in common with most extra-genital venereal sores that it was wanting in the usual characteristics of a chancre. He had a rule that if a sore did not yield to simple treatment at once to suspect syphilis.

Mr. W. G. SPENCER showed a case of Bullet-wound of the Brain in a man who had been shot with a revolver, the bullet entering immediately below the centre of the right lower eyelid. The patient was admitted to St. Bartholomew's Hospital with right hemiparesis and aphasia. After being for a time unconscious he recovered. At present there was rigidity of the arm with tremors, which began in March, 1900 (the wound having been inflicted in October, 1899). He had never had any fits. The right lower face was paretic with spasm, the upper face being normal. Sensation in the right arm was good, but there was pain in the muscles and in the middle finger. The muscles were not wasted but voluntary movements were absent except for slight advancement of the arm. Mr. Spencer produced skiagrams showing the situation of the bullet, which was in the region of the posterior clinoid process on the left side. The special senses were not affected and speech was fairly good.

EPIDEMIOLOGICAL SOCIETY OF LONDON.

Discussion on the Epidemiology of Scarlet Fever in Relation to the Utility of Isolation.

A MEETING of this society was held on Feb. 15th, Dr. P. MANSON, C.M.G., F.R.S., the President, being in the chair.

Dr. A. NEWSHOLME read a paper on the Epidemiology of Scarlet Fever in Relation to the Utility of Isolation. He admitted that the problem was, in the present state of their knowledge, insoluble, but its discussion would serve to indicate the proper lines of inquiry and of safety in practice. Though the micro-organism of scarlet fever had not been certainly identified there could be no doubt as to its existence; it was killed by heat and disinfectants and the disease was communicable by personal intercourse, by fomites, and by such vehicles as milk. Until, therefore, they knew more of its natural history it was obviously their duty to combat it by the only means at present available—disinfection of things and isolation of persons. A notable feature of the disease was the regular cyclical succession of increasing and decreasing prevalence and mortality, which, however, did not coincide in different towns, which made it necessary to compare only years of maximum with maximum and minimum prevalence or mortality to which, since notification had been practised, they could often add fatality. But there had been in this country a remarkable reduction in the mortality since 1883, which from 1859 has never sunk below 0·28 per 1000 population except in 1873, the year following a period of excessive mortality, when it was 0·19, while since 1884 the highest mortality had been 0·36, and the minimum 0·08. This change, though coincident in point of time with the introduction of isolation hospitals, could not be ascribed wholly to their influence, for it had been observed in towns and even in countries where such isolation had never been attempted, yet it was by no means universal, as had been alleged by the opponents of isolation

hospitals, for while in Berlin the improvements had been very marked there was none in Prague, and little, if any, in Christiania, the only difference being that the oscillations were not so wide as formerly, and the same was the case at Boston. The occurrence of extremely high death-rates followed by others as low, and due to the exhaustion of susceptible material, was characteristic of towns where such isolation was not practised. It was remarkable that the mortality from scarlet fever had always been low in Paris, though that from diphtheria was higher than in any other town in Western Europe, and in Boston, U.S.A., where diphtheria was even more rife; the years of highest mortality from the one disease coincided with those of the lowest from the other. This might suggest a complementary relation between diphtheria and scarlet fever were it not that no such alternation was observed in Berlin, Montreal (where both were very prevalent), and elsewhere. The reduction in the mortality from scarlet fever could not be wholly explained by the improvement that had taken place in the sanitary and social conditions of the people in most civilised countries, for it was not so general, but comparing communities that had adopted isolation with those under equally good sanitary conditions they could not but conclude that it had the effect of moderating the severity of successive cyclical epidemics, and by enabling susceptible individuals to escape infection, if only for a few years longer, it tended to lower the fatality, which was notoriously higher in early childhood. It would, however, be rash to assume that the present reduction of the prevalence, mortality, and fatality which in some towns was now less than 1 per cent. among hospital cases, in other words the attenuation of the virus, would be permanent, for in the early part of the nineteenth century it had been observed, though not to the same extent, and ascribed by Dr. Graves to the depletory treatment then in vogue until the return of the disease to its former virulence disillusioned him, and even now one occasionally, though rarely, met with cases of a malignant type; but that these were in any way connected with the aggregation of patients in hospital was an assumption for which there was not an iota of evidence. In most houses isolation was impracticable and the removal of the patient was necessary to prevent the whole of the susceptible children from contracting the disease. To determine the extent to which hospitals tended to check the spread of the disease he had been collecting statistics, too few as yet for positive conclusion, but sufficient to indicate the lines on which such investigations should be conducted. Taking a number of houses (1) from which the first case had been removed so soon as notified; or (2) not until secondary cases had appeared; and (3) where the patients were treated at home, he noted and tabulated the number of subsidiary cases in each class, the period that had elapsed between the onset of each and of that immediately preceding, as well as since its removal, the number of persons in the same families and in other families occupying the same houses under and over 20 years of age who escaped, with the attack rate for each during the rise and decline of an epidemic, and other data, all of which were greatly in favour of hospital treatment in their crude state, while every proper correction or revision made them more so—e.g., most of the cases treated at home were so because there was ample room for isolation without removal, or because there were no other children in the house to whom the disease could spread; and, on the other hand, secondary cases appearing later than a week after the removal and before the return of the first could not be due to personal infection from it, and in many the patient was not removed until too late for prevention, some, indeed, not until the second or third weeks. As to the alleged higher mortality among "return" cases, even when properly so called, it was a well-known feature of disease that successive cases in a family progressed in virulence, especially when treated at home.

Mr. SHIRLEY MURPHY defended isolation hospitals as removing one means of communication, though others remained to be discovered; statistical results from comparison of isolating and non-isolating towns, apparently against the former, must be falsified by errors of method or ignoring different circumstances, as well as cyclical variations of prevalence and mortality. In 1893, when from the seventeenth to the twentieth week the Metropolitan Asylums Board failed to meet the demand and many patients were treated at home, the number of secondary cases rose rapidly.

Dr. FRANKLIN PARSONS pointed out that it was but recently that hospital isolation had been at all generally adopted, yet the mortality from the isolated diseases had sunk far more than that from measles and others that were not, and it was evident that the aggregation of cases and concentration of the infection was greater in a confined room than in a hospital ward.

Dr. BOOBBYER said that with regard to the comparison of the scarlet fever statistics of different towns variously circumstanced in respect of hospital isolation, he wished to point out that not only were the internal conditions of these towns and the periodicity of their cyclical and local epidemic waves extremely various, but the conditions of their surrounding districts as regards all these matters were at least equally diverse. In many such districts, too, practically no precautions against the spread of infection were taken by the local authorities. Moreover, while very many of these peripheral districts were doing nothing in the way of hospital isolation, the large towns themselves were not doing anything like the amount they were supposed to be doing. For example, the huge discrepancy between the hospital death-rate of Huddersfield during 1899 (1·5 per cent.) and the home death-rate (28·5 per cent.) probably meant, *inter alia*, that more than nine-tenths of the home cases were not notified. With reference to return and other secondary cases he had, he thought, pointed out as far back as in 1892 that these were apparently more fatal than primary cases. Return cases were ordinarily most numerous in autumn, but with a rising epidemic they were most prevalent on the upward slope of the epidemic wave irrespective of season. The low death-rates in hospitals disproved the theory that they gave rise to a new and more fatal type of infection. Still, isolation hospitals had not done as much as was expected of them, and probably the explanation was to be found rather in the life-history of the scarlatinal virus than in faults of the hospitals. Who could say that what was known as scarlet fever was anything more than the outcome of one phase—or incident—of the life-history of an organism whose other incarnations, as saprophyte or parasite, they were unable to follow?

Dr. LOUIS PARKES pointed out the economic advantages of hospital isolation in enabling the parents and others to follow their usual employments, and suggested that the possible presence of the microbe in apparently healthy throats might be a source of infection, as it was in the case of diphtheria, that notification and isolation could not prevent.

Dr. H. R. KENWOOD considered hospital isolation indispensable for the poor, and protested against the indiscriminate admission of patients of all classes to the exclusion virtually, if not actually, of those suffering from far more fatal diseases. In his district of Finchley the children of the poor died from diphtheria while the beds in the hospital were filled with scarlet fever cases, some coming from houses rented at £100 per annum. Half the expenditure of the Metropolitan Asylums Board thus spent might to much better purpose be devoted to the medical inspection of schools and other uses. Even measles was at the present time more fatal, indeed he had several hundred cases of scarlet fever through his hospital in the course of eight years without a single death.

Dr. E. F. WILLOUGHBY expressed his regret that no reference had been made to the age constitution of the populations of the towns under consideration. For scarlet fever being a disease of early life, and rarely fatal after the tenth year, the mortality of a town must be greatly influenced by the number of children living under 10 years. To take an extreme case, children under this age constituted 24 per cent. of the total populations of London and Berlin, but only 12 per cent. of that of Paris, so that equal death-rates per 1000 population would indicate a mortality in Paris twice as much as in London or Berlin among those who were susceptible and to whom the mortality was practically confined.

Dr. H. T. BULSTRODE, referring to Dr. Kenwood's observations as to the expediency of providing isolation accommodation for diseases other than scarlet fever, remarked that obviously if the fatality rate of scarlet fever became much further reduced it might be a serious question as to whether some other infectious disease having a higher fatality-rate might not be attacked. He thought that much of the misunderstanding which obtained as to the value of isolation hospitals arose from a perpetuation of the old view that a disease such as scarlet fever could be "stamped out." But

such a stamping out assumed that the micro-organism of the disease in question was confined to the human species, and that, moreover, it had no saprophytic existence. There was some evidence to negative both these views. But even if the disease was confined to the human species it would be necessary in order to stamp it out to recognise a case the moment it appeared, to isolate it at that moment, and to disinfect all articles which had been exposed to infection at that instant. But all these things were clearly impracticable. The proper attitude to adopt in relation to the present controversy was, he thought, to improve their fever hospitals, to control in a greater degree than at present the diagnosis, to provide more observation wards, and generally to make for better accommodation. The statistics of many isolation hospitals bore witness to the fact that there was some room for improvement, and he thought it wise in every particular to face the situation. All recent experience fully justified the attitude of successive medical officers of the Local Government Board in setting themselves to oppose the erection of unsuitable "temporary" hospitals. Sanitary authorities had no right to morally compel the people under their charge to be sent to hospitals which were not properly equipped.

After some remarks by Dr. R. D. SWEETING, Dr. W. A. BOND, and Dr. THEODORE THOMSON, the PRESIDENT defended what Dr. Kenwood had called indiscriminate admission on the ground of the difficulty of drawing a line of eligibility, since a man's occupation was of more importance to the public than his income. He had sent his children to a hospital in the interest of his practice and patients. The suggestion of a parasitic phase of scarlet fever in other animals was favoured by its remarkable limitation to temperate climates, for it was a character common to all diseases of that nature to be restricted to particular climates or regions

Dr. NEWSHOLME said that Dr. Millard's error consisted not in the shortness of the period on which his statistics were based, but in his method of applying them, which ignored the different incidence of the maxima of prevalence and of mortality in different towns. He maintained that all ratepayers had a right to hospital treatment, which he believed was always better; but if any selection of cases were made it should be made, not on the social position of the families, but on the risk of the spread of infection in each case. He entirely agreed with the importance of taking the age constitution of a population into consideration in comparing one town with another, but had not as yet been able to obtain the information desired by Dr. Willoughby. He thought that Dr. Kenwood's remarkably low mortality might be due to his indiscriminate admission of cases and that its limitation would lead to a recrudescence of the fatality in future.

BRITISH GYNÆCOLOGICAL SOCIETY.

Exhibition of Specimens.—The Surgical Treatment of Prolapse of the Uterus.—The President's Inaugural Address.

A MEETING of this society was held on Feb. 14th, Dr. J. A. MANSELL MOULLIN, the President, being in the chair.

Dr. R. D. PUREFOY (Master of the Rotunda Lying-in Hospital, Dublin) showed two very interesting specimens of Fibroid Disease of the Uterus. In the first case a single woman, aged 52 years, was attacked with a severe form of peritonitis for six weeks, and while under treatment was found to have a large, firm abdominal tumour having many of the characters of fibroma uteri. She was sent to the Rotunda Hospital for operation and during this the abdominal wall was found to be firmly incorporated with the anterior surface of a large fibroid connected with the left cornu of the uterus by a small pedicle. The omental adhesions were so numerous and extensive that considerable bleeding ensued during their separation. It was observed that the surface of the tumour presented very much the appearance of an ovarian cyst in which suppuration had occurred. On section the substance of the tumour (except a small portion near the pedicle) was found to be of a dark red colour, and was hollowed out into large cavities freely communicating and containing unaltered blood in large quantities. Dr. H. C. Earl reported as follows on the microscopical appearances: "The tissues of the tumour, though so unusual in colour, did not show degenerative changes, but stained in the usual way, and the numerous cavities having a very smooth lining membrane appeared to be dilated blood-vessels." This condition in a fibroma was of great rarity and very few instances of it had as yet been reported in any country. In the second case the patient was a single woman from whom a large fibroid uterus had been removed by panhysterectomy. The specimen was interesting because it showed numerous submucous, interstitial, and subperitoneal fibroids in various stages of development. The existence of fibroid disease had been recognised six years previously, but it was then in such an early stage and the uterus was so small that no treatment was deemed necessary, and her advanced age encouraged the hope that any further growth would be very slow. In both cases a very satisfactory convalescence followed the removal of the tumours.

Mr. CHRISTOPHER MARTIN (Birmingham) showed three specimens of Mal-formed Uteri. The first was a so-called "double uterus" (didelphys uterus). In this case the left half was patent and the right was distended with decomposing menstrual blood (pyometra). This was first drained per vaginam in May, 1895, but the opening made closed, and retention of the menses with septic complications again supervened. As the patient was becoming pyæmic the double uterus was removed by vaginal hysterectomy in August, 1900. The two uteri were quite distinct, the peritoneum dipping down between the fundi as far as the internal os. The cervical canals were connected by fibrous and muscular tissue, but the two cavities were separate. The patient, who was married and had one child, was 41 years of age. The second specimen was a one-horned uterus. This patient, aged 45 years, had had two children. In May, 1899, Mr. Martin removed a big semi-gangrenous cystoma of the left ovary with a twisted pedicle. When operating he observed that the right ovary, tube, and horn of the uterus were absent. The patient continued to suffer severe pelvic pain with irregular hæmorrhages which nothing benefited. Finally, in September, 1900, Mr. Martin removed the uterus per vaginam with complete relief to the patient's sufferings. The third specimen was a rudimentary double uterus with misplaced hypertrophied ovaries, removed from a single girl, aged 18 years. She had never menstruated and the vagina was a cul-de-sac only one inch long. The external genitals, pubic hair, and breasts were well developed. Each ovary was sausage-shaped, between four and five inches long, stretching from the internal abdominal ring to the corresponding kidney. There were ripening follicles in each ovary. From each ovary there stretched a thin rounded muscular cord, about one-third of an inch thick and three inches long, which dipped down into the pelvis between the bladder and rectum and ended, without uniting with its fellow, in the top of the rudimentary vagina. Evidently here the two ducts of Müller had been arrested in development at a very early stage. All three patients made a complete recovery.

Mr. BOWREMAN JESSETT read a paper upon the Surgical Treatment of Prolapse of the Uterus.

The PRESIDENT delivered his Inaugural Address. The present year, he said, inevitably constituted a historical landmark; but a detailed comparison of modern gynæcology with that which prevailed even 17 years ago, when the society was founded, would have committed him to writing a complete treatise upon the subject. He would limit his observations to a few operations. Asepsis in abdominal surgery not only reduced the mortality following operative procedures, but by making actual inspection practicable when the diagnosis was uncertain rendered early treatment possible. 17 years ago ovariotomy statistics were engrossing attention, and the cleanliness insured by Listerism, as it was then called, was reducing a terrible mortality almost to vanishing point. The success which attended ovariotomy for cystoma led to the removal of the tubes and ovaries for inflammatory affections, and also for the effect which their removal exercised upon fibroid growths of the uterus. In chronic inflammatory disease of the uterine appendages the value of operative treatment was now beyond dispute, and the inefficiency of other forms of treatment had long been recognised. Once the tubes were affected they never regained their healthy condition but remained an ever-possible source of fresh inflammatory trouble. The patients were invariably chronic sufferers and operation alone could give permanent relief. When operation became the recognised treatment whole chapters devoted to earlier methods were practically deleted. Removal of the ovaries for fibroid tumours of the uterus, however, had not fulfilled the expectations to which

the success attending early operations gave rise. It was applicable only to tumours of a comparatively small size, and its results both as regards checking the growth and arresting the hæmorrhage were quite unreliable. The position of the ovaries below and behind the uterus rendered the operation frequently difficult or even impossible and it was not less dangerous than removal of the tumour itself. This naturally led to the consideration of hysterectomy. This was at first an operation of appalling mortality. Keith alone obtained fair results. He recorded 38 cases with three deaths. The extra-peritoneal treatment of the stump introduced by Koeberle marked an important advance, but though many operators working upon this principle obtained excellent results the operation was never regarded as an ideal one. Many modifications followed. Panhysterectomy had then a fair trial, but involved necrosis and foul discharges, and was not a commendable operation. At length the plan of ligaturing both the uterine and ovarian arteries removed the principal danger associated with hysterectomy—viz., secondary hæmorrhage—and at present the generally accepted rate of mortality (with experienced operators) was 5 per cent. Even this rate would unquestionably be lowered were it possible to obliterate the traditional teaching that operation should be deferred till life were threatened or existence was unsupportable. A London teacher had recently given 17 as the percentage mortality, but essential factors had been ignored and the result of a computation so made might as well have been 70 as 17. Turning to removal of the uterus for cancer he said that Mr. Jessett had recorded a series of 107 cases with an immediate mortality of under 3 per cent. Where it was desirable to operate and yet be certain that the disease would recur he questioned the advisability of performing complete hysterectomy. In almost every case recurrence took place in the cicatrix and this, if the uterus had been completely removed, lay in direct contact with the bowel, which therefore became soon involved in the cancerous growth. When the disease commenced in the cervix it extended laterally, not to the body, which became involved at a late stage, if ever, and which therefore afforded greater or less protection to the bowels. In conclusion, he summarised the evolution of modern knowledge on ectopic gestation. The practical lesson which had been learned was that, whatever the phase and whatever the stage, there was but one remedy—viz., operation; where, however, the fœtal heart could be detected the question arose whether the operation, always inevitable, should be undertaken at once or deferred for a time.

HARVEIAN SOCIETY OF LONDON.

Exhibition of Cases.

A MEETING of this society was held on Feb. 21st, Dr. D. B. LEES, the President, being in the chair.

Mr. J. JACKSON CLARKE showed a case of Spastic Paralysis in a boy, aged six years. The spastic condition chiefly affected the muscles of the right thigh and leg and to a less extent the left side. The parents first noticed it when the child was two years of age. At present the foot was in a line with the leg and the muscles had the characteristic "clasp-knife" action. The boy could not wear an ordinary boot on the right foot and the gait was difficult, the boy preferring to crawl. The mental faculties were somewhat impaired. Mr. Clarke intended to elongate both tendons Achillis and on the right side to divide the hamstrings. During the past four years he had treated surgically many cases of the kind and the results, both in the upper and the lower extremities, had been most satisfactory. Careful post-operative treatment was necessary to insure success. Failures were either due to insufficient operative measures or to want of proper instrumental control after operation. Save in cases where great mental deficiency was present the old rule of non-interference was obsolete. Massage was of no lasting benefit before operation.—The PRESIDENT, Dr. A. A. BATHE, and Dr. W. EWART discussed the case.

Mr. CLARKE also showed a girl, aged 16 years, the subject of Congenital Syphilis. For two years he had treated her for gummata rapidly forming over the nasal bones, in the nasal septum, and at the lateral aspect of the skull. Before that she was under a physician for severe syphilitic enlargement of the liver and spleen. The patient was anæmic and stunted. The common stigmata of the disease were absent and there were no absolutely diagnostic symptoms of hereditary syphilis present. Surgically, epiphyseal and joint lesions and weak spines that resisted ordinary anti-rachitic treatment were common evidences of syphilis. In infants the rule was—When in doubt try mercury; if a rapid improvement followed there was no doubt as to the nature of the morbid condition. The present patient, though suffering from late lesions, had greatly benefited from mercury and iodide of potassium.—Dr. EWART referred to similar features as regards hepatic and splenic enlargement, stunting of growth, peripheral gummata, &c., in a male patient of the same age. In his case there had been early keratitis, perforation of the palate, and clubbing of the fingers, but the teeth were quite unaffected.—Mr. CAMPBELL WILLIAMS thought the case was one of acquired syphilis contracted during the early years of life. There was a total absence of all the classical signs of the congenital type in the teeth, eyes, ears, and physiognomy. Moreover, extensive gummatous ulceration with great destruction of the external soft parts of the nose and adjacent tissues, together with isolated and broken-down gummata, were common in the tertiary stage of the acquired disease, but was not the form of tissue attack selected by the tertiary stage of the congenital type of the malady. Text-books did not recognise that congenital syphilis had its secondary and tertiary stages, just as the acquired form had.—Dr. TRAVERS SMITH and the PRESIDENT also took part in the discussion, and Mr. CLARKE replied.

Dr. EWART and Mr. S VERE PEARSON showed a case of Phthisis treated by Maguire's Formaldehyde Injections. The patient was a male, aged 28 years, in whom bilateral apical tuberculous infiltration without the major signs of excavation was complicated by dental and dyspeptic trouble. Although not a pure instance of the treatment, since other measures had also been adopted, it indicated the partial improvement which might be obtained in a case of marked tuberculosis. After 23 injections of formaldehyde the patient still coughed up numerous bacilli and the râles persisted at both apices, but there was marked general progress in the expansion and resonance of the chest on percussion. The cough was better and the expectoration was less and had changed from muco-pus to clear mucus. A second course was contemplated after a stay in the country.—The PRESIDENT requested Dr. Ewart to favour the society with the general results, as far as he could state them, which he had obtained from this plan of treatment. It was necessary to be very cautious in drawing conclusions from individual cases. The importance of very carefully weighing the evidence for and against a new treatment of this kind was indicated by the past experience of the profession with regard to tuberculosis.—Dr. DUTCH, Dr. BATHE, Dr. E. CAUTLEY, and Mr. HUBERT PHILLIPS also discussed the treatment.—Dr. EWART, in reply, stated that his experience of the treatment was decidedly favourable and agreed with that of Dr. Maguire. He referred to other cases shown elsewhere in which the good results had been manifest. In view of the careful manipulation necessary and of the slight complications apt to arise, such as local swelling, thrombosis, &c., he could not recommend the treatment for out-patients. In hospital and private practice he had not had any serious complications and no abscesses.

Dr. BATHE showed a boy, aged 11 years, who was subject to recurrent attacks of Psoriasis Guttata for three years and he asked for suggestions as to methods for preventing the attacks.—Mr. WILLIAMS and Dr. SMITH discussed the case and made some suggestions as to treatment and prognosis.

Mr. H. J. CURTIS showed an infant with Accessory Auricles on the Neck.

Dr. W. J. HARRIS showed a typical case of Brachial Neuritis which was associated with loss of radial pulse on the same side.—The PRESIDENT said that he could entirely confirm what Dr. Harris had stated as to the improvement in this case. Brachial neuritis or neuralgia certainly occurred as a sequela of influenza, but not usually with such marked symptoms, and it seemed possible in this case from the history, the absence of the radial pulse, and the fact of a dilated left ventricle, that there had also been embolism or thrombosis.—Dr. HARRIS demonstrated a method of applying a combination of the galvanic and faradaic currents in the treatment of the case and the meeting then adjourned.

EDINBURGH OBSTETRICAL SOCIETY.

Exhibition of Specimens.—Psychoses following Pelvi-abdominal Operations.—Apparent Low Implantation of the Ureteric Opening.

A MEETING of this society was held on Feb. 13th, Dr. R. MILNE MURRAY, the President, being in the chair.

Dr. F. W. N. HAULTAIN showed a Large Œdematous Fibroid removed by Abdominal Hysterectomy and Double Dermoid Ovarian Tumours, one being associated with Supernumerary Ostium of the Fallopian Tube.

Dr. N. T. BREWIS showed a Uterus with Cancer of the Body; a Fibroid Uterus studded with Tuberculous Nodules; and two other Fibroids removed by Hysterectomy.

Dr. MICHAEL DEWAR showed two Hodge Pessaries which in three months had become almost circular and unbent while in the vagina. No hot douche had been used by the patient, and in order to soften them it required a much higher temperature than could be borne by the vagina. The explanation might lie in inferior manufacture due to the scarcity of rubber.

Dr. J. HAIG FERGUSON exhibited a Photograph showing Displacement of the Sigmoid Flexure of the Colon in front of a Full-time Pregnant Uterus; and a Cystic Kidney removed by Abdominal Section, which lay in the pelvis and presented some of the physical signs of an ovarian cystoma.

Professor A. R. SIMPSON showed an Ovarian Fibroma; a Double Ovarian Carcinoma from a patient, aged 26 years; and a Double Ovarian Cystoma (one had ruptured) and a Tubal Pregnancy.

Dr. G. KEPPIE PATERSON showed a specimen of Hydramnios of the Ovum. It was expelled at between two and a half and three months after cessation of the menses and was of about the size of a lemon of moderate dimensions. The amnion with its contents was expelled alone and whole, the decidua following a few days afterwards. The fœtus was found attached to the amnion and was evidently of less than three weeks' growth, so that the amnion must have continued secreting the liquor after the death of the fœtus. At six weeks after cessation of the menses no appreciable enlargement of the uterus could be detected. The patient suffered more than ordinarily from the vomiting of pregnancy.

Dr. J. HALLIDAY CROOM read a paper on Psychoses following Pelvi-abdominal Operations. Mental aberration occurred after operations in general surgery, even after such a minor accident as a simple fracture. After the administration of anæsthetics delirious mania had followed and in some cases weak-mindedness had lasted for a very variable period. Abdominal and pelvic surgery was no exception. The normal functions of the uterus and ovaries were themselves not unassociated with mental aberrations; alterations in the temper, actual hallucinations, and disordered appetites of all kinds were accompaniments both of menstruation and pregnancy. The same was the case with the menopause: it was more frequently associated with curious mental phenomena than any other period of a woman's life. Everyone was acquainted with the frequency of insanity occurring after ordinary labour, but puerperal insanity generally occurred in those whose personal or family history indicated some mental weakness. Dr. Croom first gave an illustrative case of mental disturbance associated with menstruation in an otherwise healthy woman with a good family history where no operative interference had been carried out. The patient was unmarried, aged 26 years, and the complaint was that for 10 years she had exhibited symptoms of violent dislike to her relatives, especially her brothers and sisters, during the five days that her catamenia lasted. She was morose during all the period, declined to speak to any member of the family, and was violently insulting when spoken to, but the day after the catamenia ceased she was bright, cheerful, and desirous of enjoying all the pleasures of life. She had been examined under chloroform and nothing morbid was found. She had no dysmenorrhœa. Her sisters were all healthy and well and there was no history of insanity in the family as far as could be ascertained. She married and shortly afterwards became pregnant, and during the whole of the pregnancy she exhibited symptoms similar to those occurring during menstruation. Shortly after labour she became perfectly well and had remained well since, even during her menstruation. Of insanity occurring after operation Dr. Croom instanced the case of a young widow, aged 32 years, who was suffering from villous endometritis with profuse hæmorrhage, both menstrual and inter-menstrual. She was curetted and made an excellent recovery. Some weeks afterwards she took an inordinate dislike to her child, threatened to murder it, and she is now an inmate of an asylum. Another was a young woman, aged 25 years, reduced to a state of extreme anæmia from constant and profuse uterine hæmorrhage dependent upon the presence of a uterine polypus. It was of about the size of a hen's egg. Such an operation entailed no very great shock to the system. The patient left the nursing home perfectly well and there had been no return of the hæmorrhage. Two months afterwards she harboured the delusion that she had been delivered of a child and was now in an asylum. So far as could be discovered there was no family history of insanity either direct or among her relatives. It might be possible to account for this case by the fact of the profound anæmia of the patient, and under such circumstances the shock of the operation would be comparatively great; but then the symptoms did not appear for at least two months after the operation, and by that time she had become physically stronger in every way. The nature of her delusion indicated that her insanity was associated with the operation and not an accidental coincidence. These cases indicated that such accidents might occur after gynæcological operations and unfortunately were utterly and absolutely unpreventable. Another case was that of a young woman of an exceedingly healthy family who suffered from intense spasmodic dysmenorrhœa which withdrew her from active duties every month. After consultation with her friends the cervix was dilated and for the two succeeding months she was quite free from dysmenorrhœa, but at the third month she became violently maniacal, and her mental equilibrium had been so very much upset ever since that her marriage had to be abandoned. Dr. Croom could also give cases of mental changes following minor operations, though fortunately less pronounced and attended with happier results than those just cited. Kelly recorded six cases of insanity after perineal operations, and one of these patients died in acute mania. Major operations might also be followed by mental disease. A patient, apparently in robust health, was operated on for a simple ovarian tumour. There were no adhesions and no difficulty whatever in the operation, which lasted 10 minutes. On the following day the patient became maniacal and she died from exhaustion in four days. It might probably be said that this was the mania or delirium of sepsis but the necropsy showed not a trace of sepsis anywhere. There was no family history of insanity. Kelly on this subject recorded eight cases out of over 2000 abdominal sections; of these five patients recovered, two remained insane, and one committed suicide. Dr. Croom's record showed five cases of insanity in over 1000 sections. Another case occurred after a rather troublesome ovariotomy with numerous adhesions. The patient made an excellent recovery. On the seventh day the stitches were removed and the wound had completely healed except for one stitch tract suppurating. On the same evening she became excited, and two days later acutely maniacal. She died shortly afterwards. One of the most painful cases was that of a patient who had hysterectomy performed for a rapidly-growing fibroid. The tumour was a large one involving a wound nearly from the ensiform cartilage to the pubes. The stump was treated intra-peritoneally. All went well till the night of the seventh day after the stitches had been removed. In the very short absence of the nurse the patient jumped out of bed, tore off the dressing, and before she could be brought back to bed the strapping had given way. This allowed the wound to reopen at its lower margin and a small portion of the gut escaped. She was in a state of violent excitement and was anæsthetised with difficulty. The temporary hernia was dealt with and the patient recovered, but only to become an inmate of an asylum, where she still was. The next case was one of melancholia which supervened six months after a simple ovariotomy. It was an easy operation and the recovery was good, but six months later the patient began to show symptoms of dislike of her friends along with evidence of suspicion and melancholy. She had now been some time in an asylum. In all the cases the operation in itself was entirely successful, and, as far as could be traced, they had no hereditary tendency whatever in any direction. In looking for causes of these mental disturbances after operation the first factor was the hereditary one and the second

possibility was sepsis; loss of blood, defective action of the kidney, &c., had also their influence in producing mental symptoms. In removing the ovaries the climacteric was induced and the woman was placed in all the possible risks of that period. Probably a neurotic constitution was an essential pre-requisite for the development of post-operative insanity. In all the cases narrated the possibilities of sepsis were excluded by careful precautions. Alienists said that the main element in the production of post-operative insanity was a predisposition, hereditary or acquired. It was remarkable that it had not been shown that insanity was more common after operations on the genital organs than after operations on any other organ, yet mental troubles were often associated with the normal occurrence of puberty, menstruation, pregnancy, and the menopause. The subject of operations undertaken in insane women with the view of effecting a cure of the mental disease was also touched upon. Dr. Croom considered that under no circumstances ought any insane woman to be operated upon unless for some distinct condition which was compromising life. Removal of ovaries and other operations performed with a view of influencing insanity or hysteria were exceedingly discouraging. He had removed the ovaries in a case of hystero-epilepsy with evident cure of the nerve symptoms. It was quite certain that after degenerative processes had occurred in the brain cells it was absolutely useless to look for any mental cure by any form of operative procedure.—Professor SIMPSON, Dr. D. BERRY HART, Dr. HAULTAIN, Dr. J. W. BALLANTYNE, Dr. A. ROBERTSON, Dr. JAMES RITCHIE, Dr. BREWIS, and the PRESIDENT discussed the paper.

Dr. BERRY HART read a paper on Apparent Low Implantation of the Ureteric Opening. Several cases of incontinence of urine had been recorded where the cause was an apparent low implantation of the end of the ureter on the vestibule near the edge of the urethra or the hymen and on one side usually. Cases had been narrated by Baker, Davenport, von Massari, Benckiser, Sänger, and Olshausen. Difference of opinion had existed as to whether the whole tube was ureteric or only its upper part ureteric and its lower part Wolffian. Dr. Hart discussed the anatomy and development of the Wolffian duct and ureter and advocated the opinion that the whole aberrant tube was not ureter but ureter in the upper part and Wolffian duct below. The anomaly was due to the persistence and potency of the lower segment of the duct and to its original junction with the ureter. The operation necessary in such cases was briefly described.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF PATHOLOGY.

Psammoma of the Optic Nerve.—Exhibition of Specimens.

A MEETING of this section was held on Jan. 11th, Professor A. C. O'SULLIVAN, the President, being in the chair.

Mr. SWANZY and Dr. H. C. EARL described a case of Psammoma of the Optic Nerve. Mr. Swanzy had removed a tumour of the optic nerve by Knapp's method, leaving the eyeball intact in the orbit. The tumour measured one and a half inches long by three-quarters of an inch wide. It filled the orbit and had caused very marked proptosis of the eyeball. The eye was blind from optic atrophy. The microscopic examination by Dr. Earl showed the following structure of the tumour. The cellular elements of the tumour were principally small, round, mononuclear cells. There was very little fibrous connective tissue present. The fibres of the optic nerve could be traced through and over the surface of the tumour, which lay within the dural sheath of the nerve, except at its posterior part. There were numerous calcified rounded bodies of varying size, all showing more or less distinct lamination. Blood-vessels were numerous in some parts, and these were the parts which contained fewest calcified bodies. There were found also numerous masses of a hyaline material which contained generally a few round cells. The most usual tumour of the optic nerve was myxoma or myxo-sarcoma. Mr. Swanzy and Dr. Earl had been unable to find any case of psammoma of the optic nerve on record within the last 16 years, the literature for which period they had searched. Two text-books stated that psammoma of the optic nerve did occur, but gave no reference to cases.—Mr. STORY said that, as far as he knew, it was the very first case in Ireland, perhaps in the United Kingdom, in which a tumour of the optic nerve had been surgically removed with the preservation of the eyeball.—Professor E. J. MCWEENEY said that on looking at the microscopic specimens of the calcareous bodies the impression he got was that they were something in the nature of calcified corpora amylacea. He had often met with corpora amylacea in various parts of the central nervous system almost as large as those he saw to-night, but certainly not so numerous. He had seen appearances precisely similar in the prostate gland except that the individual corpora were larger. Dr. Earl's reference to a preliminary hyaline stage in these masses would seem to bear out the idea that they were of the nature of calcified corpora amylacea, as it was well known that these bodies were at first hyaline before calcareous deposition set in. The term "psammoma" implied, he believed, a laminated concentric arrangement of layers of fibroid tissue surrounding the central masses. This was found in the pineal body, which was the type of psammomata, and in the absence of a definite lamination of the connective tissue round these corpora amylacea he should hesitate to call the structure a psammoma. He only expressed these views in a tentative way, as he had not the opportunity of making more than a cursory inspection of the sections. With regard to the involvement of the optic nerve itself, he confessed that he did not see any nerve fibres in the specimen. If corpora amylacea were really the groundwork of the tumour it was robbed of its rarity to a great extent, as these bodies were found frequently in the nervous system in both normal and pathological specimens.—Mr. SWANZY, in reply, said that in removing the tumour the external rectus was divided (it was not necessary to dislocate the eye forward, as that was already done) and the eyeball turned over on the base of the nose, which happened to have a low bridge; otherwise he would have selected the internal rectus. By these means he could easily get at the optic nerve as it entered the eyeball, and he found the tumour pressed close to the eyeball, without being adherent. He divided the optic nerve with the scissors, which enabled dislocation across the nose to be carried further. He felt round the tumour with his finger and separated it as far as possible, dividing it then with scissors close to the optic foramen. After suturing the external rectus to its stump he replaced the eyeball in its socket. There was now no sensation in the cornea and the retina was beginning to undergo degeneration. He thought it hardly likely that the eye would prove useful as an ornament. The eyelid was drooping now, but on retraction taking place, as he believed it would, he was quite certain that the cornea would slough. He hardly thought it to be an operation suited for a tumour of the optic nerve itself. It was more suited for non-malignant tumours of the orbit, without interfering with the optic nerve, the cutting of which would mean interference with the nutrition of the eyeball. He therefore did not consider it a very useful operation.—Dr. EARL, replying to Professor MCWEENEY, said that the calcified bodies might have been calcified corpora amylacea, but then there were no non-calcified corpora amylacea in the specimen, which he thought was a peculiar coincidence; and, furthermore, the hyaline material, the precursor of the calcified bodies, was not laminated at all.

Dr. TRAVERS SMITH exhibited the Stomach of a Man, aged 45 years, presenting an Enormous Carcinomatous Tumour along the greater curvature projecting into the lumen but sparing the orifices. The patient suffered from neither pain nor vomiting, his appetite was good, and his bowels were regular. The specimen was of interest as illustrating how vast a carcinoma might be present in the stomach without producing stomach symptoms if the growth did not involve the orifices.

Dr. EARL showed the Ovaries of a Child at Birth which contained a large number of Follicular Cysts. The greater part of the ovarian tissue was destroyed by the pressure of the cysts.

Professor MCWEENEY demonstrated Blood Films from a case of Spleno-medullary Leukæmia which he had at present under observation. The condition was quite characteristic, the red corpuscles being 3,440,000 and the white being 300,000 per cubic millimetre. Myelocytes were very numerous, a large minority being eosinophil.

Normoblasts were extremely numerous, each field containing several; megaloblasts were also common.

NORTHUMBERLAND AND DURHAM MEDICAL SOCIETY.—A meeting of this society was held on Feb. 14th, Mr. Rutherford Morison, the President, being in the chair.—Dr. E. H. Davis showed a youth, aged 19 years, who after operation for exostosis on the posterior and outer aspect of the humerus 12 months ago developed complete Musculo-spiral Paralysis. Operation was advised with a view to suturing the divided nerve.—Dr. I. G. Modlin showed: 1. A woman, aged 30 years, who after having been treated for other tuberculous bone lesions had the Left Elbow-joint Excised. There had been some local recurrence of tuberculous disease in the elbow a few months later; this time it was treated by scraping, packing with iodoform gauze, and a glycerine emulsion of iodoform. The elbow now showed a perfect result. He cited several cases in which treatment by iodoform emulsion had been successful and claimed for it some specific anti-tuberculous property. A lengthy discussion ensued in which the consensus of opinion was against the specific action of iodoform emulsion. 2. A woman, aged 49 years, whose Right Breast was Removed with the Glands three years ago. There was recurrence a year after and again 18 months later in the axillary glands and finally three months ago. Injections of Coley's fluid, which were begun on Dec. 22nd, were continued daily until Dec. 31st, when they were suspended for three weeks, and then they were given irregularly until Feb. 8th, the dose being gradually increased up till 15 minims. No benefit had resulted.—Many of those present related their experiences with Coley's fluid, thyroid extract, and Chian turpentine in inoperable sarcomata and carcinomata, universally without permanent good result.—Dr. G. R. Murray showed a miner, aged 29 years, who had syphilis five years ago which was treated for one month only. Three months ago he developed frontal headache, alteration of vision, and daily fits during which consciousness was not lost. The fits consisted of giddiness, pricking sensation in the left hand, followed by chronic spasm of the left arm spreading to the leg of the same side. Examination revealed general weakness of the arms and legs, increased reflexes, and difficulty in walking due to post-neuritic atrophy. The treatment, which consisted of iodide of potassium and mercury internally and mercurial inunctions, had resulted in almost complete cessation of the fits.—A lengthy discussion followed in which the following points were considered: mercurial *versus* anti-mercurial treatment of syphilis, imperfect anti-syphilitic treatment predisposing to tertiary lesions, the maximum useful dose of iodide of potassium, and early trephining for the treatment of optic neuritis and the prevention of optic atrophy. The opinion was against operation in this case because of the destructive effects of the lesion and the permanence of optic atrophy and the relief of the symptoms by the present treatment.—Dr. W. G. Richardson showed a case of Ruptured Abscess of the Broad Ligament. The patient, a woman, aged 25 years, had had uterine hæmorrhage two months ago, apparently not abortion. A month ago there was sudden abdominal pain, with faintness, sickness, and collapse, and on the following day when the patient was admitted to the hospital the abdomen was found to be distended and there was dulness in the flanks. The abdomen was opened. The peritoneum contained pus and in the left broad ligament was a swelling containing pus which was removed with ovary and tube. Friability of the tissues prevented ligature and necessitated the fixing of the left cornu in the lower end of the incision. The peritoneum was washed out and a drain was left in Douglas's pouch. In spite of extreme collapse and rupture of the abscess into the general peritoneal cavity a good recovery had been obtained. The primary focus of infection could not be found, the removed ovary and tube being healthy.—Dr. A. M. Martin showed a youth, aged 19 years, whose shoulder had been crushed five weeks ago. He had been treated by a bone-setter previously to the operation. The movements of the shoulder-joint were restricted and painful. Physical signs pointed to fracture and sub-coracoid dislocation of the head of the humerus. Operation by anterior incision was performed. The fractured head was found in the glenoid fossa and was excised, the deformity having been entirely due to displacement of the upper end of the lower fragment. The result of operation showed great improvement in mobility.—Dr. G. G. Turner showed a case of Charcot's Elbow. A man, aged 49 years, fell upon his wrist two and a half months ago, injuring his elbow, which became swollen and painful. In a few days he recovered sufficiently to resume work; five days later the elbow began again to swell. The patient now exhibited enormous swelling, increased flail-like mobility, and large osteophytic outgrowths. On account of this development he was discovered to have Argyll-Robertson pupil, absent knee-jerks, and ataxia, which was especially well marked in the arms.

MIDLAND MEDICAL SOCIETY.—The sixth ordinary meeting of this society was held on Feb. 13th at the Birmingham Medical Institute, Mr. Jordan Lloyd, the President, being in the chair.—Dr. O. J. Kauffmann showed a man, aged 22 years, suffering from Friedreich's Ataxia. The patient had ataxia on walking of considerable, though but mild, degree, and showed Romberg's symptom very marked. There was also ataxia of the hands fairly marked on writing. The knee-jerks and plantar reflexes were both absent. There were no sensory symptoms and at no time had the patient suffered from fulminant pains. Fine shaking of the head was present, particularly on an attempt to fix an object, and quick, shock-like nystagmus was marked when the eyes attempted to follow rapidly a moving point. This last sign had developed while the patient was under observation. There was no tremor of the hands, and at no time had the patient had any difficulty of micturition. The fundi oculorum were normal; the intelligence was very good. Symptoms of this illness had first appeared five or six years ago, and had commenced with severe, often intolerable, itching under the balls of the toes. Gradually unsteadiness in walking and standing had crept on, at first only noticeable to the patient himself, but within the last two or three years perceptible to others and compelling him six or eight months ago to give up work. He had been a sufferer from periodical headaches which he connected with his present illness. The family history was inconclusive, the patient having left home at the age of 11 years and not having seen his people since then. Although he had led a varied and hard life he bore no marks of syphilis and strenuously denied ever having suffered from this disease, and showed no signs whatever of intemperance. As regards the diagnosis, the only other disease which might be thought of was insular sclerosis; but the rather early onset and the total absence of the knee-jerks, coupled with the absence of tremor from the hands and arms, were points against the diagnosis of that condition.—Mr. F. Marsh showed a specimen of a Wool Swab which had been encysted in the peritoneal cavity for 17 months and had been removed by him 10 days previously. The patient was a man, aged 51 years. In September, 1899, an exploratory operation had been performed in a hospital on account of symptoms pointing to gall-stones. "Adhesions" only were found. No relief was afforded, and after a few months the intermittent pains became constant, the vomiting more frequent, and the action of the bowels very irregular. He was admitted into the Queen's Hospital in October, 1900, but careful and repeated examinations failed to discover any definite cause of the symptoms. Subsequently he attended as a medical out-patient. A fortnight ago a distinct swelling, hard and rounded, was noticed for the first time, presenting at the lower edge of the liver in the region of the gall-bladder. He was therefore admitted for an exploratory operation, no definite diagnosis being made. On exposure the swelling resembled a thickened and distended gall-bladder, adherent everywhere to coils of intestine and omentum. These adhesions were with difficulty broken down and the coils of intestine freed. An incision was made into the swelling when a little odourless pus escaped from around a sebaceous-looking mass which further examination showed to be wool, about an ordinary handful. The cyst wall was removed in its entirety. No other lesion was found. The man made a good recovery and was now free from pain.—Mr. Christopher Martin showed a large Sub-serous Myoma which had become strangulated from Axial Rotation on its Pedicle. It was removed from a married woman, aged 40 years. The tumour caused few symptoms till rotation occurred when acute peritonitis set in. When the abdomen was opened the tumour, which was of about the size of a football, was found to be semi-gangrenous, of a greenish black colour, and universally adherent to small and large omentum. The pedicle attached to the fundus was three inches long and twisted through three complete turns.

After separating the adhesions the pedicle was ligatured and the growth was removed. The rest of the uterus was studded with smaller myomata and was accordingly removed by the sub-peritoneal method. The patient made a good recovery and returned home on the seventeenth day.—The President showed a Suppurating Ovarian Dermoid removed by abdominal section from a girl, 18 years of age, who was admitted to the workhouse infirmary with symptoms of puerperal fever coming on a few days after her first confinement. The tumour lay fixed in the left loin and had most of the characters of a renal enlargement.—Dr. W. J. McCardie read a paper on the Choice of an Anæsthetic.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A meeting of this society was held on Feb. 15th at the Paddington-green Children's Hospital, Mr. Watson Cheyne being in the chair.—An Address of Condolence to the Crown, drawn up by the council, was approved by the meeting, the members meanwhile standing. —Dr. Arnold Lawson showed a case of Acute Retro-bulbar Neuritis in a girl, aged 10 years, with a tuberculous personal and family history. The sight of one eye had suddenly failed in May, 1900. The pupil was semi-dilated and almost immobile, and the edges of the optic disc were slightly blurred. Two days after the excision of the other eye (which had been lost in early infancy) there was a remarkable improvement in the sight of the remaining eye. Colour sense was good as regards blue and red, but absent as regards green. The optic disc was atrophied. The pupil acted to light.—Dr. McCaw said that the case reminded him of one of cerebellar tumour with optic neuritis.—Mr. Watson Cheyne showed a case of Coxa Vara in a child, aged 10 years, in which four years ago he had operated upon the left leg in the following manner. A longitudinal incision was made on the outer side of the thigh at the upper part and the femur divided transversely below the lesser trochanter. The limb was then rotated inwards, so that when fastened to the upper part of the femur it moved through the normal limits of rotation. The ends of the bones were fixed in this position by an aluminium plate which embraced both, and was secured by nickeled tin-tacks. The plate was still in, the position of the foot was normal, and the patient walked quite well with that leg. The other leg was one and a half inches shorter than its fellow and showed marked external rotation. Mr. Watson Cheyne advocated operating on both legs at the same time in other cases.—Mr. Clement Lucas said that the procedure described by Mr. Cheyne was generally known as Gant's operation, though perhaps not used for coxa vara.—Mr. Jackson Clarke and Dr. G. A. Sutherland made some remarks.—Mr. Watson Cheyne, in reply, said that Mr. Gant divided the femur below the trochanter for flexion or for abduction and not for rotation. He thought it would be difficult to get enough rotation from inter-trochanteric osteotomy.—Dr. Leonard Guthrie showed a Myxœdematous boy, aged six years, after six months' treatment by thyroid gland extract, with photographs illustrating the improvement that had taken place.—Dr. Sutherland, Dr. Fletcher Beach, and others discussed the case.—Dr. Dan McKenzie showed an infant, nine months old, affected with head-jerking and nystagmus of about two months' duration. Twitching of the left corner of the mouth and of the shoulder muscles on the same side had been noted. The patient was slightly rickety and very intelligent for her age. Temporary lapses into unconsciousness had been observed. She was improving under small doses of arsenic.—Dr. Edmund Cautley and Dr. Sydney Stephenson discussed the case.—Mr. Jackson Clarke showed a child, aged nine months, who at birth had marked Macrostoma and Severe Club Hand, both on the right side. The former had been successfully operated upon when the child was five weeks old. Later Mr. Clarke contemplated operating for the club hand by section of ligaments, elongation of tendons, and splitting the lower end of the ulna.—The Chairman and Dr. Sutherland offered a few remarks upon the case.—Dr. Lambert Lack showed a case of (?) Basic Meningitis due to acute suppurative otitis in which recovery followed puncture of the drums of the ears.—The Honorary Secretary showed for Dr. George Carpenter a case of Proptosis in a girl, aged 12 years, who presented no other evidence of exophthalmic goitre except the occasional presence of Graefe's sign.—Dr. McCaw read a paper upon a case of Tetanus Neonatorum which had been successfully treated with anti-tetanic serum. The diagnosis was confirmed bacteriologically.

CLINICAL SOCIETY OF MANCHESTER.—A meeting of this society was held on Feb. 19th, Mr. F. A. Southam, the President, being in the chair.—Mr. H. Lund showed three cases of Osteal Sarcoma.—Dr. A. Wahltuch showed two patients Treated Successfully by Massage—viz., (1) infantile paralysis in a child, aged four years, and (2) a girl, aged 17 years, who had suffered first from neuralgic headaches, bald patches appearing later near the fontanelles, and subsequently white hair growing to normal length on the affected areas. The normal hair was of a very dark brown colour. The effect of four months' massage was the appearance of a new growth of dark hair replacing the white.—Mr. J. E. Platt gave a demonstration on the Treatment of Flat-foot.—Dr. J. Gray Clegg showed: (1) an Unusual Case of Graves's Disease in a man in which there was marked proptosis of the left eye only and enlargement of the right lobe of the thyroid gland; and (2) a form of Chronic Ulcer of the Cornea.—Mr. J. Howson Ray showed two cases of Traumatic Epilepsy treated by Sub-dural Implantation of Silver Foil. The first patient was a soldier of the Black Watch, aged 30 years, who was wounded in the left parietal region at Magersfontein in December, 1899, when portions of the parietal bone and underlying brain were damaged. He was operated upon in Cape Colony and was then invalided home. Jacksonian epilepsy came on about May, 1900, and a preliminary trephining showed embedded spicule of bone about an inch away from the original wound, as well as adhesion between the dura mater, scar tissue, and damaged cortex. Mr. Ray separated the dura mater from the adherent brain and introduced a piece of silver foil measuring one and three-quarter inches by one inch beneath the dura, to which it was sutured. This operation took place on Oct. 22nd, 1900, and up to the present time two fits only had occurred and there was marked improvement in the general condition. The second patient was a civilian, aged 21 years, who was injured four years previously when about a third of the right parietal bone was smashed and the underlying cortex cerebri was destroyed. Adhesion of the dura mater to the brain supervened, leading to frequent epileptic seizures of the Jacksonian type. Operation was carried out as in Case 1 on Oct. 24th, 1900, when a piece of silver foil measuring two and a quarter inches by one and a half inches was sutured in position. Up to the present no fits had occurred since the operation. A radiogram was exhibited showing the silver foil in position.

NEWCASTLE-UPON-TYNE CLINICAL SOCIETY.—A meeting of this society was held on Feb. 7th.—Dr. F. C. Coley read a paper on Quacks and their Advertisements. The paper, which was illustrated by pamphlets, cuttings, and instruments, was most interesting and caused great merriment in the meeting. At the beginning Dr. Coley wished to impress the fact that a large amount of responsibility rested on the profession in the matter, and "the judicious pointing out of some of the errors to the public was one way of leaving this dirty world a little cleaner." One way in which this latter might be effected was by approaching the managing authorities of the more respectable periodicals and persuading them to have the more objectionable and harmful advertisements expunged. Quackery was defined as "a pretence of knowledge which was not there, combined with the treatment of a patient with no chance of a diagnosis."—Dr. F. Hawthorn, Dr. T. M. Allison, Dr. Alderson, Mr. Toggin, Dr. J. W. Leech, Dr. S. S. Whillis, and Dr. G. G. Turner discussed the paper and quackery in general.—Dr. Turner read notes on two rare cases of Strangulated Hernia, the specimens being shown. The first case was that of an elderly man with a strangulated umbilical hernia. The operation for his relief included the insertion of Paul's tubes. Although rallying for 24 hours he sank at the end of the third day from shock. In the second case a woman was operated on for strangulated femoral hernia. Free herniotomy in the usual manner was performed, but Mr. Turner not being satisfied that the obstruction had been relieved opened the abdomen in the linea semilunaris. It was then found that the peritoneal neck of the sac was the cause of the constriction and also that the hernia had been reduced, although constricted, into the sub-peritoneal tissue. Liberation of the gut was effected, but the patient ultimately died from gangrene of the gut at the point of constriction. Mr. Turner laid stress on the constricting structure not being the usual one and on the difficulty of

determining when the bowel was in a safe condition to return.—Dr. Hawthorn, Dr. Leech, and Dr. T. Beattie discussed these two latter points with reference to cases in their experience.

LARYNGOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on Feb. 1st, Dr. Cresswell Baber, the President, being in the chair.—Dr. J. Donelan showed a case of Nasal Polypi with marked deformity, and also a specimen from a fatal case of Exophthalmic Goitre in which the thymus was not only persistent but actually enlarged. This he pointed out was quite usual in such cases and raised the question as to whether it had any causal relationship to the disease.—Dr. Wyatt Wingrave showed a section of a Mucous Patch of the Tonsil.—Dr. A. Bronner exhibited a New Cutting Trephine for Nasal Operations which he worked with an electro-motor.—Sir Felix Semon showed a drawing of Symmetrical Congenital Gaps in both Anterior Pharyngeal Pillars with Complete Absence of the Tonsils.—Dr. StClair Thomson thought that it could not yet be stated definitely that such cases were of congenital origin.—Dr. Davis showed a case of Cyst of the Floor of the Nose.—Dr. MacBride discussed the causation of such cysts.—Dr. Lambert Lack showed a case of Mucocele of both Frontal Sinuses which had expanded the bones and pushed the eyes outwards. He had opened the sinuses and on the left side had established a free opening into the nose. This side was doing well, but the right side did not make progress. He asked whether any further operation was advisable.—This was discussed by Dr. H. Tilley, Dr MacBride, and the President.—Dr. Lack also showed a case of Persistently Recurring Nasal Polypi with Frontal and Ethmoidal Suppuration on which he had operated with very good results.—The indications for operations on the frontal sinus were discussed by Dr. Tilley, Sir Felix Semon, Dr. FitzGerald Powell, Dr. Lack, and others.—Dr. Tilley showed some Papillomata removed from a child under anæsthesia in the sitting posture.—Dr. Dundas Grant showed a case of Epithelioma of the Tonsil, and a Section of a Vocal Cord which clinically suggested malignant disease, but microscopically proved to be inflammatory.—Dr. Grant, in conjunction with Dr. Mackintosh, also showed a case of Glottic Spasm in a woman, aged 24 years.—Dr. William Hill showed a case of Innocent Growth of the Right Vocal Cord, and Dr. Atwood Thorne and Dr. Dundas Grant with Dr. Wyatt Wingrave, showed Laryngeal Cases for Diagnosis.

LIVERPOOL MEDICAL INSTITUTION.—The third meeting of the Pathological and Microscopical Section of this society for the session 1900-91 was held on Feb. 21st, Dr. J. Hill Abram being in the chair.—Dr. Nathan Raw showed three specimens of Pericarditis, one acute fibrinous, one septic, and another tuberculous. Dr. Raw also showed a rare specimen of Cystine Calculi in a kidney and ureter.—Dr. W. Alexander and Dr. Dimond showed: (1) a specimen illustrating the Infiltration of a Multilocular Ovarian Cystoma from adjacent Malignant Disease of the Sigmoid Flexure; (2) a soft Myxoma removed from the groin of a man, for which he had been operated upon twice previously; and (3) a Fractured Pelvis of severe type, but which had not been accompanied with injury to any of the viscera.—Mr. W. Thelwall Thomas showed: (1) a Carcinoma of the Kidney, 5½ lb. in weight, which had been removed from a patient, aged 50 years, after suffering from hæmaturia for many years; (2) a Rodent Carcinoma removed from the occiput of a man aged 62 years; and (3) specimens of Carcinoma of one breast with Sarcoma of the other existing at the same time and removed from a woman aged 50 years.—Dr. F. H. Barendt showed a specimen of Comedo.—Dr. R. J. M. Buchanan showed specimens of Epithelioma's from horses—(1) eyelid, (2) penis, (3) tail, the last being markedly pigmented.—Dr. J. E. Gemmell showed a surface Papilloma of an Ovary and a specimen of a Fibroma of an Ovary.—The specimens were discussed by the Chairman, Sir W. M. Banks, Mr. F. T. Paul, Mr. G. P. Newbolt, Mr. Thomas, Dr. Alexander, Dr. Raw, Dr. Gemmell, Dr. J. Barr, and Professor H. Briggs.—Mr. Paul gave a demonstration on Mastitis in its Relation to Tumour Formation. Mr. Paul evidenced the relation between chronic mastitis and varied tumour formations and illustrated his communication with numerous microscopical sections and a unique series of photomicrographs.—A discussion followed, in which the Chairman, Sir W. M. Banks, Mr. Rushton Parker, and Professor Briggs took part, and Mr. Paul replied.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Feb. 6th at the Dispensary, Broad-street, Mr. G. B. Wray, the President, being in the chair.—It was resolved, on the proposition of the President, seconded by Dr. H. Handford, that the members record on the minutes of the society their deep sense of grief at the loss they, in common with the empire, had suffered through the death of their dearly loved Queen Victoria and that their sincere sympathy go forth to His Imperial Highness and all the Royal Family in their time of bereavement.—Dr. Ransom then communicated his paper on the Suppression of Phthisis, dwelling on the responsibility of medical men. He maintained that the education of the individual and the public by them was essential to the successful treatment of phthisis. He instanced the great value of residence for a time in a sanatorium for educational purposes, *re* the disposal of sputum and its disinfection, the regulation of exercise and diet, the use of the thermometer, the taking of weight, the value of fresh air, and the harmlessness of cold; and that the period of convalescence be spent in some light outdoor employment and back to a country life. Agricultural training colleges would be of great value as supplements to sanatoria and endeavours should be made to start coöperative farms and horticultural colonies. Dr. Ransom advocated the voluntary notification of phthisis, that milk and flesh of cattle should be inspected by skilled officers, and that compulsory notification of ulceration in cows' udders should be insisted on.—The President, Dr. Handford, and Dr. P. Boobbyer also spoke on the subject.—Dr. Ransom showed pathological specimens from a young girl, aged 20 years. They were a soft growth in the body of the fourth dorsal vertebra and both ovaries of the size of oranges covered with nodular growths of the size of small beans (the growth was a round-celled sarcoma).

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—The fifth meeting of the session was held on Feb. 11th, Mr. H. E. Clark, the President, being in the chair.—Dr. Charles Workman showed: (1) A Brain the seat of extensive Tuberculous Disease and Hydrocephalus; (2) three Brains with Tumour Formation, with Microscopical Section of the same; (3) a Heart with Double Mitral Orifice and Valves; (4) a Heart showing Enormous Dilatation and Hypertrophy; (5) an Aneurysm of the Arch of the Aorta with Hypertrophy of the Left Ventricle; and (6) a Heart showing Hypertrophy of the Left Ventricle with Aneurysm of the Wall due to Fibrous Transformation.—Dr. Walter K. Hunter showed Microscopical Preparations of the Blood from a case of Splenic Leukæmia.—Dr. T. K. Monro showed: (1) A boy, aged 12 years, presenting Atrophy of the Right Testicle following Rheumatic Orchitis; and (2) a woman, aged 26 years, with Loss of Stereognostic Sense in the Right Hand (senses of touch, pain, and temperature preserved).—Dr. H. Rutherford showed: (1) A Rectal Dermoid removed by the Para-sacral Route; (2) Double Coxa Vara in a Child, aged seven years; (3) Congenital Dislocation of the Hip (to contrast with the preceding case); (4) Microscopical Sections of a Wood's Painful Subcutaneous Tumour; and (5) a Skiagram of a case of Vertical Dislocation of the Patella without rupture of the quadriceps or ligament treated by open operation.—Dr. David Knox showed: (1) A girl, aged 18 years, with Hypertrophy of the Right Mamma; and (2) a specimen of Round-celled Sarcoma involving both Hemispheres of the Brain.—Dr. Hugh Maclaren showed: (1) A specimen exhibiting an Abnormal Situation of the Vermiform Appendix; and (2) specimen of Embolism of the Femoral Artery, Thrombosis of the Femoral Veins, and Embolism of the Pulmonary Artery which had caused death.

IPSWICH CLINICAL SOCIETY.—A meeting of this society was held on Feb. 14th, Mr. James Hossack being in the chair.—Dr. H. H. Brown read a very interesting paper upon Gastric Ulcer and its Complications. He also spoke with reference to several cases which he had met with in private practice, showing at the same time a specimen of a stomach with a perforating ulcer of that viscus and duodenum also.—A discussion then followed, Mr. J. F. C. Hossack, Dr. W. W. Sinclair, Mr. Staddon, Mr. C. G. Mosely, Mr. A. Y. Pringle, Dr. W. A. Gibb, and Dr. Ward joining in, and Dr. Brown replied.—Dr. Ward showed two specimens. The first was a Brain from a chlorotic girl showing cerebral thrombosis. The patient, a young girl, suddenly became aphasic and drowsy, and rapidly becoming comatose died very shortly without regaining consciousness. She had

been suffering from anæmia. There was no history of syphilis or tubercle. The second specimen was a portion of the Femoral Artery of a boy with a rent three-eighths of an inch long in it. The history was as follows. The boy was admitted into hospital suffering from a false aneurysm of the thigh; a month previously he had been shot in the thigh with a pocket pistol which he had been carrying in his pocket. The bullet was still *in situ*, and was found with the x rays. On cutting down this condition of the femoral artery was discovered. He had been sent in on account of recurrent hæmorrhage.

CARDIFF MEDICAL SOCIETY.—A conjoint meeting of this society and the Biological Section of the Cardiff Naturalists' Society was held at University College, Cardiff, on Feb. 8th, Dr. E. Walford and Mr. T. H. Thomas, the respective Presidents, presiding.—Dr. D. R. Paterson read a paper and illustrated it with lantern slides on the Life-history of the Malarial Parasite. The experimental methods which led to the identification of the parasite were described and illustrated and its life-history and the various methods of its reproduction were fully gone into. Finally, the manner of recognition of the particular variety of mosquito which harboured the parasite was indicated.—Professor W. Newton Parker read a paper on Parental Care in the Lower Vertebrata. He gave an account of a number of instances amongst fish and amphibians in which sundry methods had been adopted for the protection of the eggs and the young. Various forms of nests were described, including those of several species of hyla and of rhacophorus schlegeli, and also numerous contrivances for the protection, nutrition, and respiration of the larvæ both within and without the body of the parent. The paper was illustrated by lantern slides.—Numerous specimens of biological and physiological interest were exhibited in the physiological laboratory at the conclusion of the papers by Professor A. F. Dixon, Dr. Swale Vincent, and others.

ÆSCULAPIAN SOCIETY OF LONDON.—A meeting of this society was held on Feb. 22nd, Mr. W. C. Worley, the President, being in the chair.—Mr. F. Hewitt Oliver showed (1) a very advanced Development of Molluscum Fibrosum in a man, aged 45 years, whose growths had existed from infancy. The distribution was general but most thickly on the abdomen. 2. An Infant with Genu Retrorsum whose Patellæ were Impalpable. Passive flexion a month ago was much limited and hyperextension of the leg existed. Now, without treatment, complete passive flexion was easy and hyper-extension of the leg was checked.—Dr. J. S. Risien Russell read a paper on the Modern Treatment of Idiopathic Epilepsy, emphasising the importance of an accurate diagnosis. To this end he advised the routine use of an analysis of the urine and an examination of the fundus oculi. He reviewed a large number of drugs that were advocated by various writers and, giving some praise to digitalis, belladonna, and borax, he thought bromide of potassium the most useful of all, especially when given with discrimination as to dose and time of the administration of the dose. Yet the patient, as a whole, must be given consideration and all defects remediable cured.

SOUTHPORT MEDICAL SOCIETY.—A meeting of this society was held on Feb. 13th, Dr. R. Harris being in the chair.—Dr. W. Permewan (Liverpool) showed a patient from whom he had recently removed a Papilloma of the Left Vocal Cord and made some observations on the best method of removal of these growths.—A case of Temporary Facial Paralysis following mastoid operation was also shown, which was followed by a discussion.—Mr. Reinhardt Anderson showed a boy on whom he had operated for Hydatid Cyst of the Liver and also a specimen of Cancer of the Mediastinum Infiltrating the Lung.

INCORPORATED SOCIETY OF TRAINED MASSEUSES.—The annual meeting of this society was held on Feb. 15th. The reports from the sub-committees showed a steady progress in the work of the society since its incorporation last July. The council aim at a high standard of efficiency for members of the profession and they only grant their certificate to those who have satisfied the examiners in their practical and theoretical work. Certificate-holders are not members unless nominated and elected by the council, and to the members further opportunities are offered of continuing their studies by special lectures in anatomy and other subjects. The honorary secretary is Miss L. Grant, 12, Buckingham-street, Strand.

Reviews and Notices of Books.

The Essentials of Regional Anatomy. By RICHARD J. A. BERRY, M.D., F.R.C.S.Edin., F.R.S.E., Lecturer on Anatomy in the New School of Medicine of the Royal Colleges, Edinburgh; Examiner in Anatomy to the University of St. Andrews, and to the Royal College of Surgeons, Edinburgh. Edinburgh and London: William Green and Sons. 1900. 8vo. Pp. 484.

THE author's intention in preparing this volume has been to provide for the medical student a work on human anatomy in which there shall be no facts with which he need not concern himself. Dr. Berry considers that at the present day the student of medicine is overworked and that his curriculum is made unnecessarily severe in some respects, especially in the study of physiology, and under these circumstances the author thinks that there is a risk of anatomy not receiving the attention it deserves as the real basis of medicine and surgery. We go far with Dr. Berry in the opinion that medical students frequently have to devote much time to studies which are of but little ultimate value, and we therefore sympathise with this attempt to assist the student, to whom the present work will be of value in presenting an accurate but somewhat brief account of the anatomy of the human body. There are no illustrations, but the book is interleaved with blank paper, on which the author hopes that the student will draw sketches of his dissections or will reproduce the diagrams drawn for him on the blackboard. We are afraid that in this Dr. Berry will be disappointed.

Although there may be differences of opinion as to the need for this work, there must be unanimity as to the excellent way in which the book has been prepared. We think, however, that the author would do well to add some diagrams. If judiciously chosen they would serve to increase distinctly the value of the book.

Syphilis of Children in Every-day Practice. By GEORGE CARPENTER, M.D. Lond. London: Baillière, Tindall, and Cox. 1901. Medical Monograph Series. Illustrated. Pp. 110. Price 3*s.* 6*d.*

THIS monograph on the subject of syphilis in children is only concerned with the congenital variety. With regard to the severity of the symptoms and the frequency of its incidence the author considers that the improvement which is manifest in these respects within recent times is due partly to attenuation of the virus and partly to the relative immunity of the subject. The manifestations of the disease are grouped systematically according to the various organs and tissues affected, commencing with the lesions of the skin, mucous membrane, and teeth, and proceeding to those of the lungs, liver, spleen, and bones. The important association of rickets and syphilis is fully discussed and the part which each plays in the production of Parrot's nodes is reviewed from the pathological standpoint. The author evidently inclines to the belief that a syphilitic process is mainly if not exclusively responsible for this aberrant development of bone. According to the author Parrot's nodes are present only to the extent of one per 1000 in cases of rickets apparently uncomplicated by syphilis. The question naturally arises, What is the distinction between the familiar bossing of the frontal and parietal bones in rachitic children and true Parrot's nodes? The conclusion is obvious, that either syphilis is extraordinarily rife among all classes or that Parrot's nodes are separate and distinct, both etiologically and pathologically, from ordinary slight degrees of bossing. With regard to treatment Dr. Carpenter insists on the

exhibition of mercury for at least one year and attaches but little importance to the influence of this drug on the subsequent development of the teeth. He regards mercury as an energetic producer of red blood corpuscles. Apart from mercury and the iodides treatment is summarily dismissed. The maintenance of nutrition in syphilitic infants, a matter of such practical difficulty, is summed up in the following sentence: "If the mother cannot nurse, and a wet nurse is out of the question, a suitable milk diet must be substituted." There is no new or original feature in any section of this little volume. On the other hand, nothing, except certain matters of treatment, of clinical importance is omitted. The illustrations are excellent and are freely distributed throughout the text.

Difficult Labour: A Guide to its Management for Students and Practitioners. By G. ERNEST HERMAN, M.B., F.R.C.P. Lond. New and revised edition. With 165 Illustrations. London: Cassell and Co. 1901. Crown 8vo. Pp. 470. Price 12*s.* 6*d.*

SINCE the publication of the first edition in 1894 Dr. Herman's book has been issued three times as a reprint and once in a revised form. The appearance of this new and revised edition is to be welcomed. It bears ample proof of careful revision without any marked increase in its size. Three new illustrations have been added, including one of spondylizema and two of central rupture of the perineum. Amongst the sections that have been modified or added to we notice those upon General Enlargement of the Child, Morbid Enlargements of the Fœtal Body, Mechanism of Labour with the After-coming Head, Can Post-partum Hæmorrhage be Prevented? and the Mechanism of Labour in Kyphotic Pelves. The most important alterations are in the chapters upon Symphysiotomy and Cæsarean Section. Writing in 1894 Dr. Herman hesitated to recommend symphysiotomy. Now he is apparently convinced that there is sufficient evidence to show that no detrimental after-effects follow the operation, and he advises its employment in certain suitable cases. He recommends the subcutaneous method and describes the operation as he performs it. In this description we think the author hardly enters sufficiently into detail. He says, for instance, "Press the point of the knife through the mucous membrane opposite the middle of the symphysis pubis." As there is no mucous membrane anterior to the frenulum clitoridis, he means, no doubt, the skin. A student without any previous knowledge reading this might well be misled. In the chapter on Cæsarean Section it is recommended when it is desired to render the patient sterile that the body of the uterus should be removed, on the grounds that the patient will be free from child-bearing and from menstruation, and because recovery after this operation is as easy as when the uterine wound has been sewn up. This is a matter upon which a considerable difference of opinion would no doubt exist amongst obstetricians.

This work has already met with considerable success and we can confidently recommend the new edition.

Normal Histology. By EDWARD K. DUNHAM, Ph.B., M.D., Professor of General Pathology, Bacteriology, and Hygiene in the University and Bellevue Hospital Medical College, New York. Second edition. London: Rebman, Limited. 1900. Pp. 318. 244 Engravings. Price 12*s.* net.

THIS work is intended primarily for the medical student, and is planned with due consideration to the facts that histology must be taught under conditions which require economy of time, and that it must have a place at the beginning of the medical curriculum when the students' technical facility is least developed. It is therefore concise in its descriptions and the histological methods given are selected for their simplicity and usefulness. Throughout the work stress is laid on the relations existing between structure and function and consequently at times the author trenches on the ground of physiology; for this most teachers of medical students will consider that no justification is needed. The book is not intended as a laboratory handbook, but it is recognised that histology must be taught in the laboratory and that a course of demonstrations and practical work are required to complete what is taught in the text.

After a short introduction there is a clear description of the cell and of the phenomena of karyokinesis, followed by chapters on the elementary tissues. In each case the general characters of the tissues are given categorically and then variations in these characters with the resulting variation in the character of the tissues are discussed. The different appearances in sections due to changes in the plane of section are carefully pointed out. Tissues of special function and the histology of the various organs are then treated. There is a very concise but clear description of the histological elements of blood and lymph. The reproductive organs and the central nervous system with the organs of special sense are described at some length. Throughout attention is paid to those points likely to be of importance to the medical student. The illustrations, which are derived from various sources, are numerous and well reproduced; those illustrating the nervous system are chiefly from Cajal. Part II., on Histological Technique, occupies 40 pages, and bearing in mind the object of the book the processes are well selected and very well described. The author has not always the courage of his convictions, as a page is occupied by Golgi's method, though it is admitted to be too difficult and the details necessary for carrying it out are omitted.

The book should serve the purpose for which it was written, but it will not replace the manuals at present used by English students.

Manual of Personal Hygiene. Edited by WALTER L. PYLE, A.M., M.D. Illustrated. London and Philadelphia: W. B. Saunders and Co. 1900. Pp. 338. Price 6*s.*

THERE are already indications that the advances in sanitary science and public health which have marked the second half of the past century are to be succeeded by an era of reform in matters which relate to personal hygiene. The manual under review is one of the outward and visible signs of this movement, it is the united production of a "combine" of American specialists in the various branches of this comparatively new science. Dr. C. G. Stockton contributes the section on Digestion and shows how violation of the rudimentary laws of physiology as applicable to food and dietetics may be responsible for general ill-health; the care of the teeth constitutes an important factor in the maintenance of a normal standard of nutrition. Dr. G. H. Fox in the next chapter treats of the Hygiene of the Skin and is followed by Dr. Ingals on the Voice and Respiration. This chapter includes the important subjects of adenoids, deformities of the chest, and spinal curvatures, the causes which lead to these conditions, and the mode of prevention. The Hygiene of the Ear, another important factor in the intellectual development of children, is adequately dealt with by Dr. B. A. Randall, while Dr. Pyle himself devotes a long chapter to the subject of the Eye, its Uses and Abuses, emphasising the dangers of certain kindergarten methods which entail constant examination of small objects at near focus. The general aspects of school hygiene are included in this chapter and deserve close attention from practitioners in this country, where "child-culture" is still regarded rather as a fad than as a serious branch of preventive medicine. The Hygiene of the Brain and Nervous System is undertaken by Dr. J. W. Courtney and the section covers ground of equal

importance since it embraces the subjects of nerve strain and nerve rest. The final chapter is written by Dr. G. N. Stewart and is devoted to the subject of Physical Exercise.

Perhaps in no country in the world has the neglect of the laws of personal hygiene produced more disastrous consequences than in the United States, where keen competition and the unhealthy conditions of urban segregation have reached a dangerous degree of development. Neurasthenia and other forms of nerve degeneration, due to what Dr. Courtney inelegantly calls "*worriment*," are familiar conditions in the United States, and hence specialists in these and allied subjects have a wide field for their investigations. We in this country should be grateful for the comprehensive manner in which experience thus gained has been systematised in Pyle's Manual of Personal Hygiene.

Éléments d'Anatomie Gynécologique. By PAUL PETIT. With a Preface by Professor PIERRE SEBILEAU. With 32 original Plates. Paris: Carré et Naud. 1901. 8vo, pp. 222. Price 16 francs.

THIS book is the outcome of work done by M. Paul Petit in the laboratory of Professor Pierre Sebileau. The anatomy of the pelvis and the organs it contains is often but imperfectly dealt with even in the best text-books, and the anatomical details required by an operating gynæcologist can only be adequately supplied by one who is himself accustomed to see and to practise such operations. The present book is intended to give not only a complete account of the pelvic viscera, but more particularly a description of the other important structures in the pelvis—namely, the muscles, fasciæ, vascular sheaths, cellular tissue, and the important lines of cleavage of the fibrous tissues. The work is divided into four parts. The first deals with the superficial and deep anatomy of the external genitalia and the perineum; the second with the pelvic region proper, including the pelvic viscera; the third with the antero-lateral portion of the abdominal wall; and the fourth with the iliac fossa. M. Petit's previous publications show that he has studied these regions with much care and detail, and the results which he records in the present work are of corresponding value. A great deal of space is devoted to descriptions of the fasciæ of the pelvis, both superficial and deep, and more especially to the relation of the fasciæ and cellular tissues of the viscera. The vascular pedicles of the uterus, vagina, bladder, and rectum are given in detail, and their importance in relation to the various operations practised for removal of the uterus is pointed out. Amongst other important sections we may call attention to those dealing with the sac of the dartos, the gland of Bartholin, the perineum, the cavum Retzii, the round ligament, and the anatomy of Alexander's operation and the operation of cystopexy. The section of the book of most value is perhaps that devoted to a description of the "vessel sheath" of Farabeuf, and its relations to pelvic cellulitis and other inflammatory conditions occurring in the pelvis. The author points out how inadequate the term "parametritis" is to describe the various forms of inflammation of the pelvic cellular tissue, and holds that the word "cellulitis" should be used qualified by the name of the particular region affected. In this he is in accord with most modern writers upon gynæcology, amongst whom the terms "parametritis" and "perimetritis," are rightly falling into disuse. A large number of full-page plates illustrative of the various dissections made are given. They are on the whole clear and well reproduced. We wish, however, that the author had stated rather more fully the position of the pelvis in the various descriptions. Owing to the want in many cases of a clear indication as to what direction any particular dissection is regarded from, the details are often hard to grasp.

The work, as a whole, is a valuable contribution to the anatomy of the pelvic region and does credit to its author.

LIBRARY TABLE.

Dental Anatomy Note Book. For use in conjunction with Tomes's "Dental Anatomy," the South Kensington Museum, and personal instruction. By DOUGLAS GABELL, M.R.C.S. Eng., L.R.C.P. Lond., L.D.S. R.C.S. Eng., Assistant Surgeon at the Dental Hospital of London. Second edition. London: Claudius Ash and Sons, Limited. 1900. Price 3*s.* 6*d.* net.—That this little book should have so quickly reached a second edition is sufficient proof of its value to the dental student. Aid books to different subjects are, as a rule, to be condemned, the student utilising them simply for the purposes of cramming. Mr. Gabell's note-book does not come under this category, and of its kind it is unique. It does not aim at taking the place of larger books on the subject, but directs the student's attention to what he should learn and also gives him some idea of how to learn it. The subject is clearly and neatly arranged, ample room being left for the student to make his own supplementary notes A point that strikes us in reading the notebook is that in places it is too scanty in its information and help.

Life in an Open-air Sanatorium. By CHARLES REINHARDT, L.S.A., M.D. Brux. Illustrated. London: John Bale, Sons, and Danielsson, Limited. 1900. Pp. 104. Price 1*s.*—This little brochure on the open-air treatment is evidently intended for the instruction of the public. The medical profession may, however, find the information which it affords regarding our home sanatoria of practical use if in doubt as to the choice of a suitable institution for a phthisical patient. Dr. Reinhardt is strongly in favour of British as opposed to foreign sanatoria, since the latter have recently shown a tendency to degenerate into mere commercial speculations on the lines of hotels rather than to order themselves as places for the treatment of the sick. He strongly urges the necessity for early treatment, and where circumstances allow suggests a stay of at least four or five months in the establishment.

The Story of Thought and Feeling. By FREDERICK RYLAND, M.A. The Library of Useful Stories. London: George Newnes, Limited. 1900. Pp. 212. Price 1*s.*—The study of psychology may be regarded as a luxury rather than as an essential element in an ordinary medical education; like the study of other branches of speculative philosophy it may involve the every-day problems of medical practice in profitless and unnecessary consideration. "The Story of Thought and Feeling" will serve as an excellent introduction to the study of mental processes for those who wish to pursue the subject, and it is written, so far as the scientific nature of the question allows, in simple and untechnical language. Any reader who can devote a few hours to the perusal of 200 small pages will find himself equipped with a very fair understanding of the meaning of consciousness, perception, thought, and language, as well as of those other mental processes which are included in the science of psychology.

The Temples and Ritual of Asklepios. By RICHARD CATON, M.D. Edin., F.R.C.P. Lond. With 34 Illustrations. Second Edition. London: C. J. Clay and Sons. 1900. Pp. 46. Price 3*s.*—Although we are more familiar with Dr. Caton as an original investigator in the fields of physiological research many of us will read with interest the first-fruits of his labours as an archæologist. From a careful study of the remains of the temples of Asklepios, and notably those at Epidaurus and Athens, Dr. Caton has been enabled to make certain suggestive speculations as to the uses and objects of some of the buildings which are more or less constant features of such temples of health. For instance, the suggestion that the Thalos was the place where the sacred serpents were housed, fed, and venerated seems to be supported by a certain amount of

collateral and direct evidence, and that certain other extensive quadrangles were of the nature of hostels for the accommodation of patients appears a natural and common-sense assumption. The ritual and mysticism attendant on the worship of Asklepios will probably ever remain in obscurity, but Dr. Caton has at least made an attempt to present us with an intelligible picture of the healing art as practised some four or five hundred years before the birth of Christ at the Greek temples of health. The contents of this little book were originally presented to the public in the form of lectures at the Royal Institution, on which occasions Dr. Caton's researches were more profusely illustrated than has been found possible in the present book form. Nevertheless, the photographs and drawings which it has been possible to reproduce are full of interest and sufficiently illustrative of the points which the author chiefly emphasises in the text.

La Rage. Par le Dr. AUGUSTE MARIE, avec une Préface de M. le Dr. E. ROUX. Paris: Masson et Cie. (*Rabies.* By Dr. AUGUSTE MARIE, with a Preface by Dr. E. ROUX.) Pp. 180. Price 2 francs 50 centimes.—This little volume forms one of the series entitled "Encyclopédie Scientifique des Aide-Mémoire," and is written by two experts in the subject, for Dr. Marie is director of the Anti-rabic Institute of Constantinople and Dr. Roux is the sub-director of the Pasteur Institute. The preface of Dr. Roux deals with the subject of rabies before and after the time of Pasteur and concludes by giving a description of Pasteur's well known method of prophylaxis. Possibly, says Dr. Roux, we shall one day be able to cure rabies; at present we can only prevent it. Dr. Marie gives a short historical summary of the knowledge of the disease, and in his first chapter deals with the malady as exhibited under different forms in different animals. A chapter follows on the pathological anatomy of rabies, and next is given a description of the virus, together with an account of Pasteur's researches in diminishing or exalting the powers of the poison. A chapter on epidemiology follows and then comes the all-important subject of prophylaxis from a sanitary point of view. Muzzling orders together with the destruction of ownerless or wandering dogs are the most hopeful measures, and where these are strictly enforced rabies practically disappears. The next chapter is taken up by a description of Pasteur's method of immunisation and of variations on this method practised by other observers. The book concludes with statistics from the various anti-rabic institutes, the figures of which go to show the prime importance of commencing treatment as soon as possible after the bite. Treatment of the disease when once declared can only be palliative. This little book is a useful summary of our knowledge, so far as it goes at present, of this terrible complaint.

First Aid to the Injured and Sick. By F. J. WARWICK, M.B. Cantab., M.R.C.S. Eng., and A. C. TUNSTALL, M.D., F.R.C.S. Edin. Bristol: John Wright and Co. London: Simpkin. 1901. Pp. 242. Price 2*s.* 6*d.*—This is one of the very many books published on first aid. The authors are both Volunteer Medical Staff officers and know their subject. The book is simply written, though we should say that there was rather too much anatomy and physiology in the first part for unprofessional readers. But the practical part is good. In the section upon Shock by Electricity we think that there are one or two points which should be made clearer. Thus we find, "The danger of a current is in proportion to its intensity." This is not strictly true, for the quantity of current also has to be taken into consideration. A small Leyden jar will give a current of very high intensity, but its output is so small that the effects are not dangerous. Again, we find directions given for releasing a sufferer from a "live" wire, which are good as far as they go, but no mention is made of the advisability of the rescuer "unearthing" himself by standing on an india-rubber mat or a pile of dry woollen rugs or something similar. In many cases the most easily procured india-rubber articles are tobacco pouches.

(1) *Science in the Daily Meal.* Pp. 45. Price 6*d.* (2) *Fruits, Nuts, and Vegetables.* Pp. 102. Price 6*d.* By ALBERT BROADBENT, F.R.H.S. Manchester: Albert Broadbent. 1900.—These two little books are apparently written by a vegetarian and we think we detect a flavour of homœopathy as well. But the foible and the heresy apart, they contain some excellent recipes for simple dishes and valuable hints as to cookery. Vegetables are far too little used in this country as food stuffs served apart from meats, and salads of cooked vegetables allowed to get cold are almost unknown. Yet, especially in the summer, a vegetable, fish, and fruit dinner is always acceptable. On page 32 of No. 2 we find the following remarkable statement concerning barley: "Its value is well known as a drink in the form of barley water, or 'barley bree,' as it is called in Scotland." We never before understood the inner meaning of the old Scots song, "Willie brewed a peck o' maut." The three blithe companions, it will be remembered, sang,

> "We are na fou, we're no that fou,
> But just a drapple in our e'e;
> The cock may craw, the daylight daw,
> But we will taste the barley bree."

There is no reason why the drinking of barley water should make anyone "fou," but somehow barley water goes oddly with the assertion—

> "Who last beside his chair shall fa'
> Shall be the king amang us three."

JOURNALS AND MAGAZINES.

The Journal of Anatomy and Physiology, Normal and Pathological. Conducted by Sir WILLIAM TURNER, F.R.S., D. J. CUNNINGHAM, F.R.S., G. S. HUNTINGTON, M.D., A. MACALISTER, F.R.S., and J. G. M'KENDRICK, F.R.S. Vol. XXXV., Part 2. January, 1901. London: Charles Griffin and Co. Price 6*s.*—The articles contained in this number are: 1. By Dr. Peter Thompson: On the Arrangement of the Fasciæ of the Pelvis and their Relationship to the Levator Ani. With five plates. 2. By Dr. William Brodie Brodie: On the Destruction of Leucocytes, in which the author describes phagocytes which are produced in lymphatic glands and have for their function the destruction of leucocytes. A plate is appended to the article showing the appearances observed. 3. By Dr. Charles Powell White: A Differential Stain for Muscular and Fibrous Tissues. A useful means of distinguishing between these tissues. 4. By Professor W. H. Thompson of Belfast: Degenerations Resulting from Lesions of the Cortex of the Temporal Lobe. Monkeys and marmosets were exclusively employed in Professor Thompson's experiments. The degenerations, which are numerous, are carefully described and are illustrated by a plate and by drawings in the text. 5. By Professor Christopher Addison: On the Topographical Anatomy of the Abdominal Viscera in Man, especially the Gastro-intestinal Canal. This is the third part of a long memoir and is illustrated by five plates. Careful measurements are given of the different organs. 6. By Dr. Otto Thilo of Riga: Stop or Click Mechanism in the Animal Kingdom, with two plates. The author adduces various examples in which muscular effort is saved by mechanical contrivances, citing especially and giving drawings of such mechanism in the dorsal fin of the stickleback and other fish. A very ingeniously written paper. He shows that the principle is adopted in the construction of the Yale lock. 7. By Dr. J. O. Wakelin Barratt of the West Riding Asylum, Wakefield: Observations on the Structure of the Third, Fourth, and Sixth

Cranial Nerves. This article, though short, is a valuable one and represents an amazing amount of careful work. The above-named nerves were dissected out along their whole course and after being hardened were sectioned along their entire length. 8. By Dr. Walter H. Gaskell, F.R.S.: On the Origin of Vertebrates deduced from the Study of Ammocœtes. This article constitutes the ninth part of a long argument on a theory advanced by Dr. Gaskell in regard to the phylogeny of the Vertebrata contained in previous numbers of the Journal and is occupied with a discussion on the probable mode of origin of the vertebrate eye. 9. The last article contains the proceedings of the Anatomical Society of Great Britain and Ireland.

New Inventions.

A SYRINGE FOR THE NOSE AND EAR.

THE accompanying illustration shows a syringe for cleansing the nose and ear, the scale on which it is drawn being two-thirds of the natural size. The instrument is simple in construction and cannot well get out of order. The glass nozzles are replaceable and can be easily kept clean and

sterilised. The indiarubber bag may be washed out with strong antiseptic solution when necessary and a few minutes' boiling does not seem to damage it. The cost is such as to bring it within the reach of hospital patients. The syringe is made by Messrs. Allen and Hanburys from my suggestion.

W. H. KELSON, F.R.C.S. Eng.

NEW OVARIOTOMY TROCAR TUBE.

WHEN tapping an ovarian cyst the difficulty of getting the fluid to travel down the exit tube attached to the trocar has been experienced by many operators. The one depicted in the illustration below has been designed to meet this

difficulty. When the cyst has been tapped and the contents will not flow a jug of water poured into the funnel-shaped opening at the side of the rubber tube will create a vacuum and the fluid from the cyst should at once begin to run; if it does not the rubber air-ball should be compressed, when the contents of the cyst, if fluid or gelatinous, should certainly find exit. The makers are Messrs. Arnold and Sons of Smithfield, London, E.C.

Cheltenham. ALEXANDER DUKE.

AN INTERESTING LIST.

THE following is a list of the Fellows of the Royal College of Physicians of London and a few (old) Licentiates or Members who held appointments to Her late Majesty Queen Victoria as physicians:—

1837.—Sir Henry Halford, Bart., physician to the Queen; Sir James M'Grigor, Bart., Sir Henry Holland, Bart., and Dr. Richard Bright, physicians extraordinary; Sir James Clark, physician to the Queen and to the Queen's household (*Licentiate*); and Dr. Neil Arnott, physician extraordinary (*Licentiate*).
1838.—Dr. Peter Mere Latham, physician extraordinary; and Dr. William Frederic Chambers, physician to the Queen and to the Queen Dowager.
1842.—Dr. John Forbes, physician to the Queen's household (*Licentiate*).
1846.—Sir Charles Locock, Bart., physician accoucheur.
1847.—Dr. Robert Ferguson, physician accoucheur.
1859.—Sir Thomas Watson, Bart., physician-in-ordinary; and Dr. William Baly, physician extraordinary.
1861.—Dr. Francis Hawkins, physician to the Queen's household; and Sir William Jenner, Bart., physician-in-ordinary.
1866.—Sir Thomas Galbraith Logan, honorary physician.
1868.—Sir Alexander Armstrong, honorary surgeon.
1870.—Dr. Alexander Nisbet (*Member*) and Dr. Benjamin Proctor Rooke (*Member*), honorary physicians.
1871.—Sir George Burrows, physician-in-ordinary; and Dr. Wilson Fox, physician extraordinary.
1873.—Sir William Gull, Bart., physician extraordinary.
1874.—Sir Edward Sieveking, physician-in-ordinary; and Sir Joseph Fayrer, Bart., honorary physician.
1875.—Dr. Charles J. B. Williams, physician extraordinary.
1876.—Sir James Alderson and Dr. Arthur Farre, physicians extraordinary.
1879.—Sir J. Russell Reynolds, physician to the Queen's household.
1881.—Sir William Richard Edwin Smart, honorary physician (*Member*).
1883.—Dr. George Owen Rees, physician extraordinary.
1889.—Dr. Thomas Graham Balfour, honorary physician.
1890.—Sir George Johnson, physician extraordinary; and Sir R. Douglas-Powell, Bart., and Sir James Reid, Bart., physicians-in-ordinary.
1891.—Sir Richard Quain, Bart., and Sir Alfred Garrod, physicians extraordinary.
1892.—Dr. Thomas Edmonston Charles, honorary physician.
1897.—Sir Samuel Wilks, Bart., physician extraordinary.
1898.—Sir Thomas Barlow, Bart., physician to the Queen's household.
1899.—Dr. James Edward Pollock and Sir William H. Broadbent, physicians extraordinary.
1900.—Dr. Alexander Bradshaw (*Member*), honorary physician, and Sir Thomas Barlow, Bart., physician extraordinary and physician to the Queen's household.

BRISTOL HEALTH COMMITTEE.—At a meeting of the Bristol Health Committee held on Feb. 19th it was reported that the expenditure for the health department, infectious hospitals, and port sanitary authority for the past six months amounted to £11,469. This exceeded by nearly £2000 the estimated expenditure.

BATH SOUTHERN DISPENSARY.—The annual meeting of the subscribers of this institution was held on Feb. 12th under the presidency of the mayor. The medical report stated that 649 patients had been attended during the year, and of these 267 were visited at their own homes. The financial statement showed a satisfactory balance.

THE LANCET.

LONDON: SATURDAY, MARCH 2, 1901.

Crime and Punishment.

IN the February number of the *Nineteenth Century* Dr. ROBERT ANDERSON, the Assistant Commissioner of Police of the Metropolis, discusses the national penal system under the uncomplimentary title, "Our Absurd System of Punishing Crime." Anything written on the subject of crime or criminals by a public official of such ripe experience cannot fail to be of interest to the community. Upon certain statistics of metropolitan crime—statistics which we are bound at the outset to say we do not accept as being in themselves conclusive—Dr. ANDERSON satisfies himself that it is a fact, and a fact of which every expert is aware, "that while crime generally is diminishing *professional* crime is on the increase." He goes on to say that this development of the professional criminal is becoming a serious public danger. Dr. ANDERSON addresses himself to the task of averting this danger, and his thesis is that "while crime in general is an ineffaceable blot upon our civilisation, professional crime is preventable and might be suppressed." He divides professional criminals, essentially burglars, housebreakers, and shopbreakers, into two classes: those who are so utterly weak or so hopelessly wicked that they cannot abstain from crime, and those who pursue a career of crime deliberately, with full appreciation of its risks. We cannot say that we regard this classification as being either definite or practical, for it is difficult to know what value to put upon the terms "weak" and "wicked" in this relation, while, we take it, few burglars proceed to work without a full appreciation of the risk they are running. However, let us try to follow Dr. ANDERSON in his way of working out a problem that is by no means easy.

Our methods of dealing with the weak and wicked are, he says, unintelligent and harsh. Our methods in the case of professional criminals, those who are criminals by deliberate choice, he looks upon as being indefensible and equally unintelligent. It is more especially to this class of professional criminals that Dr. ANDERSON is anxious to direct attention. After dealing with some of the moral aspects of crime, and after brushing aside the part played by humanity-mongers in the matter, he recites some individual instances of ineffectual sentences passed on habitual or professional criminals. He then gives it as his opinion that the serious increase of professional crime is due mainly to the fact that, owing to the decrease in ordinary crime, sentences are now so lenient that they have ceased to be a terror to the professional criminal. He goes on to say that "if an Act were passed fixing 12 months' imprisonment as a minimum sentence and consigning the worst sort of professional criminals to the gallows it would, I believe, though ill-advised, be better, and (I have no hesitation in adding) more humane than our present methods." In the end, Dr. ANDERSON advocates imprisonment for life in the case of habitual and professional criminals, and he bases his penal scheme upon the criminal's love of liberty. He says that "in setting themselves to punish crime our criminal courts are pursuing a wrong system, a system unworthy of the age, a system begotten of mediæval superstition and ignorance." Dr. ANDERSON is no doubt right when he insists upon a full and open inquiry into the prisoner's character and antecedents, an inquiry upon a more elaborate, formal, and dignified footing than the investigation which is now carried out by some judges. The result of this inquiry would determine whether the prisoner is "a citizen or an outlaw." Then, if he is an outlaw and if he belongs to the first, the weak or wicked, class, Dr. ANDERSON would have him "sent to an asylum prison where his life can be spent in useful labour with every reasonable alleviation of his lot." If, on the other hand, he belongs to the deliberate professional criminal type "let him be deprived of the liberty he abuses." Bearing in mind that only crimes against property are under consideration it is not unnatural that Dr. ANDERSON at this point introduces into his scheme the subject of the abolition of the market for stolen property. "Let the prisoner," he says, "be required to disclose what he has done with his booty, and if he refuses, or fails to satisfy the court that it is out of his power to do so, let there be but one sentence—imprisonment for life." We are by no means so sanguine as Dr. ANDERSON is that his suggestion, of which he thinks nine-tenths of the community will unreservedly approve, would, if carried into effect, succeed in preventing or suppressing professional crime. We do not think a judge and jury would be induced to consign a man to life imprisonment upon an issue that was not before the court, nor can we imagine a legislature having the temerity to authorise or to ask them to do so. Dr. ANDERSON, in urging imprisonment for life on an extended scale, takes shelter behind the eminent jurist Sir JAMES FITZJAMES STEPHEN, whose advocacy of an extension of the death penalty is given in the following quotations: "I would punish with death offences against property only upon great deliberation and when it was made to appear, by a formal public inquiry held after a conviction for an isolated offence, that the criminal really was an habitual, hardened, practically irreclaimable offender. ..... I suspect that a small number of executions ..... would do more to check crime than twenty times as many sentences of penal servitude." And again, "If society could make up its mind to the destruction of really bad offenders they might in a very few years be made as rare as wolves, and that probably at the expense of a smaller sacrifice of life than is caused by many a shipwreck or explosion." Dr. ANDERSON recognises that such a return to bygone methods is inadmissible and he is constrained to admit the futility of his own proposal. "For even," he says, "where the law authorises penal servitude for life the judges will not impose, and public opinion will not tolerate, such sentences for ordinary crimes against property. But my proposal assumes that we shall cease to regard the *punishment* of the offender as a matter of primary importance." Therefore, he

tells us, that radical changes in prison administration would be involved.

But is all this upheaval of our present system of penal legislation and administration necessary? We think not. As we have already said, we do not believe that the figures adduced by Dr. ANDERSON warrant him in arriving at the opinion he has formed as to the serious increase of professional crime. As shown in the Report of the Commissioner of Police of the Metropolis for 1899, the proportion of felonies has decreased in 20 years by fully one-half. In our opinion this decrease in felonies generally must be taken as affording satisfactory evidence that the influences at work, whatever they may be, are tending, both directly and indirectly, to bring about, and are bringing about, a decrease in the number of the more serious crimes against property and in the number of professional criminals by whom these crimes are committed. Mr. TROUP of the Home Office, the editor of the "Judicial Statistics" for 1898, makes some interesting remarks on this point. From a table dealing with the proportionate amount of crime to population he concludes that "crime would appear to have reached a maximum in the sixties, and from 1868 there is a steady decline in the total and a steady decline also in the two leading divisions, crimes against the person with violence and crimes against property without violence." Further on, and dealing with what is the very basis of Dr. ANDERSON'S argument, this authority speaks as follows: "There is good reason to believe that relatively to the number of crimes committed the number of persons committing crimes is smaller in 1898 than in the earlier years of the table. It has been pointed out that in recent years there has been a great reduction in the ordinary length of sentences; that offences which used to be punished by five or seven years' penal servitude are now often punished by a few months' imprisonment, with the result that an habitual criminal after a few months of incarceration is again set at liberty and allowed an opportunity of committing fresh depredations. This is not a question of the deterrent effect of the sentence—of whether long or short sentences have the greater efficacy. We have to do merely with the fact that if a considerable number of the crimes of habitual criminals which were formerly punished by penal servitude are now punished by short imprisonment the number of offences appearing in the statistics in the proportion to the number of persons engaged in committing them must necessarily be greater than formerly; or conversely, if the number of offences has decreased the number of offenders must have decreased in a still greater proportion." This decrease must be referable to the complicated machinery which, in recent years, has been continuously at work upon criminal and criminally-disposed persons in prison and out of prison—a machinery which has reference not merely to the effect produced by imprisonment, but to the results of early education and training in the lower grades of social life, to prisoners' aid societies, and to increased opportunities for obtaining work on release from prison, as well as to other influences brought to bear upon the individuals as well as upon the class. We think that it is one of the mistakes that Dr. ANDERSON has made in formulating his proposal that he has brought severity of sentence and reduction of professional crime into a too close and absolute contiguity as cause and effect. No doubt, of late years, public sentiment has been influenced by LOMBROSO and his disciples with their fertile imaginations and their attractive, if unpractical, theories on criminology, and *pari passu* mild sentences are given which appear to be out of proportion to the crimes. But so long as crime generally is decreasing steadily the public will not be persuaded that their system of dealing with it is either absurd or wrong, or that the machinery at work is ineffective, or that there is evidence to justify them in reverting to the more Draconian measures of bygone days.

Quackery and the Law in the United States.

MR. PURRINGTON of the New York Bar recently delivered a lecture before the Church Congress at Providence, Rhode Island, upon "Eddyism and the Law," attaching the name of Mrs. EDDY, the original promoter, to the fad known as Christian Science, in preference to using the usual designation of a rigmarole neither Christian nor scientific. Eddyism, although it has been responsible for more than one death in England, has not yet assumed, and does not seem likely to assume, the numerical importance which it has in the United States, so that the principal interest to the English medical practitioner in the lecture of Mr. PURRINGTON lies in his exposition of the laws generally prevailing in various American States under which endeavours have been made to control the irresponsible pretence of healing on the part of persons wholly unqualified by education and training. In the case of DENT *v.* Virginia (129 United States Reports, 114), to which he refers, the question for the decision of the Supreme Court was the validity of a statute of West Virginia requiring every person practising medicine in the State to obtain a certificate from the State Board of Health as to his possessing certain defined qualifications. It was objected on behalf of a practitioner not so qualified that this statute violated a constitutional principle governing all legislation in the United States to the effect that no individual State may deprive any person of life, liberty, or property without due process of law, but it was held that the State, in the exercise of its power to provide for the general welfare of its people, may exact from parties before they can practise medicine a degree of skill and learning in that profession upon which the community employing their services may confidently rely; and the statute of West Virginia was upheld. This statute, however, or statutes of similar tenour, will not always avail to prevent the dangers of Eddyism and similar crazes. It does not need the astuteness of a lawyer to see that to a charge of illegal practice of medicine a denial of *any* practice of medicine may be held a good answer. That the defence has been actually made, and made successfully, we find in an instance cited by Mr. PURRINGTON, in which it was said by the court that "Prayer for those suffering from disease, or words of encouragement, or teaching that disease will disappear and physical perfection be attained as a result of prayer, or that humanity will be brought into harmony with

God by right thinking and a fixed determination to look on the bright side of life, does not constitute the practice of medicine in the ordinary sense."

In another American case (SMITH v. LANE, 24 Hun. 632) a defendant set up in defence to an action by a masseur for his fees that the masseur was a medical practitioner, but that not being duly qualified as such he was not entitled to recover. The defendant lost his case, for the court naturally declined to regard the masseur as a medical practitioner, but awarded him the fees due to him as a masseur. The court also incidentally gave its opinion that statutes regulating "medical practice"—using that term without further qualification—were intended to forbid incompetent or unqualified persons from administering or applying medical agents or performing surgical operations, in order to prevent injury and loss of life resulting to those employing such persons. This dictum strengthens the position of the Christian Scientists, inasmuch as this sect makes no use of medical agents and expressly repudiates operative surgery. We find, however, from Mr. PURRINGTON that in one State, that of Nebraska, the statute relating to medical practice defines a medical practitioner as "anyone who shall operate on, or profess to heal or prescribe for, or otherwise treat, any physical or mental ailment of another." This definition of medical practice can clearly be made to work against Eddyism. Under it an Eddyite was held to have been rightly convicted of acting as a medical practitioner without having complied with prescribed conditions, the New York Supreme Court holding that "the object of the statute is to protect the afflicted from the pretensions of the ignorant and avaricious and its provisions are not limited to those who attempt to follow beaten paths and established usages."

It will be seen from the instances cited by Mr. PURRINGTON that the law regulating medical practice in America varies in form in different States, and cannot be described as certain in its results. It is interesting, however, to observe what has been attempted in a country whose legal system closely resembles our own even if it forces us to the conclusion that legislation against quackery must always be attended with the greatest difficulty. No country approves of legislation in defence of class interests, while day by day the difficulty of setting verbal boundaries to the limits of medicine becomes greater. Again, differences of opinion naturally exist as to those against whom legislation should be aimed, which would have to be settled before definition was attempted. For example, as far as we know, the elder of the Peculiar People does not practise for gain, and some may hold that only those who profess to heal for gain should be interfered with. Again, the old woman who prescribes simples for a cold in the head or who charms warts can hardly be said to be such a danger to the community as to be a fit subject for legal interference. There is, moreover, a strong feeling in Great Britain against anything which seems to interfere with liberty of thought and action. But with regard to this we may fairly point out that to legislate for the protection of the ignorant is recognised as the duty of the Government in other cases, even where the person protected would probably claim to be a free agent acting upon his own judgment and entering into a contract which primarily concerns himself. Only recently, for example, the business of usury has been placed under a stringent Act of Parliament. The business of those who trifle with the health and life of foolish people is at least as fit an object for State interference as that of those who lend money to foolish people at exorbitant rates of interest. That life and health are now trifled with, and this with impunity, is shown by the avoidable deaths which have taken place through Eddyism, through the ignorant fanaticism of the Peculiar People, and through quackery. We recently drew attention to a case where a herbalist attended a patient till she died from cancer, prescribing such mixtures for her use as his wife might dictate when in a hypnotic trance. Such mischievous mystics ought to be restrained by law.

It is difficult to quit the subject of Christian Science without referring to its amusing side. Mr. PURRINGTON tells us that Mrs. EDDY, although teaching that "there is no such thing as pain or disease and that she can restore decaying bones to a healthy condition," has had teeth taken out under the application of local anæsthetics by a dentist, whose name and address he gives. She now, it appears, wears false teeth made by the same gentleman. Mr. PURRINGTON also quotes the following delightful piece of etymology from her religious writings: "The word pantheism is composed of two words, Pan and Theism. Pan stands for a deity in mythology; theism for a belief concerning deity in theology." No wonder that she adds warningly, "The mythical deity may please the fancy, while pantheism suits not at all the Christian sense of religion." We wonder what the erudite Mrs. EDDY would find to say about a "Pan-Anglican Synod," or how she would define the functions of her mythical deity in a "Pantechnicon."

Rex v. Browning.

WE publish in another column a letter from Mr. GIDEON W. B. MARSH giving the history of this remarkable case. The defendant, CHARLES WILLIAM BROWNING, aged 35 years, was indicted at the County of London Sessions before Mr. MCCONNELL, K.C., chairman, for having made false statements with intent that they should be entered in the register of deaths contrary to the provisions of the Registration of Births and Deaths Act, 1874. It appears that the prisoner had been a medical student and in this way had become possessed of the requisite knowledge to skilfully make a counterfeit presentment of disease. The whole story is so interesting to medical men as to demand a little commentary.

On Jan. 14th, 1901, BROWNING called upon Mr. MARSH complaining of difficult micturition. He paid him another visit on Jan. 25th. Four days later Mr. MARSH was fetched to the prisoner's lodgings. He found the patient with a temperature of 103° F. saying that he had pains in the loins and constant headache. BROWNING also said that he was passing urine frequently and in small quantities. The urine was of the colour of porter, specific gravity 1025, and on microscopical examination showed hyaline and granular tube-casts. Mr. MARSH diagnosed the case as one of acute

nephritis. On Feb. 4th the albumin, which had been in considerable quantity, had materially increased. The man was collapsed and apparently in a rigor. The following day he was very drowsy and had convulsive movements in the limbs; altogether he was confined to bed for eight days. On Feb. 6th an individual called on Mr. MARSH and said, "At four o'clock my brother had a fit, in which he died," giving a description of uræmic convulsions. Mr. MARSH thereupon issued a certificate wherein "uræmia consequent upon acute nephritis" was given as the cause of death. The suspicions of the prisoner's landlady were aroused by the fact that the "brother" had not called in anyone at the death, that the body was locked up in the room, and that no one had been to lay it out. Mr. MARSH proceeded to the house to verify the death. On gaining admission to the presumed death-chamber he found a dummy corpse. The police were communicated with and eventually the prisoner was arrested, being himself patient and "brother." In a box in his room was found a policy on the Pearl Life Insurance Company for £200. BROWNING, whilst Mr. MARSH was attending him, had worn a heavy moustache. The "brother" was clean-shaven, and so completely had the operation changed his appearance that neither the medical man nor the landlady was aware of the deception that was being practised upon them. It was quite natural that there should have been a resemblance between the physiognomy of two brothers. The moustache was the differential object which masked their identity. We cannot help regretting that the law interfered with BROWNING'S disposal of the "corpse." We feel defrauded of the last chapter of the story. The difficulty in the way of effecting the burial, as a body, of some rolled-up blankets and a pair of boots was the only rational corroboration of the prisoner's statement that he obtained the certificate to convince his relatives that he was dead. He might have intended to abscond after he had obtained the death certificate and registered it, or he might have had designs upon the Pearl Life Insurance Company, though this impeachment he denied.

The story forms a remarkable instance of malingering, probably with a substratum of real disorder; of mistaken identity of the living; and of attempted pretence of death. It is not stated whether BROWNING'S temperature was taken in the mouth or the axilla. If in the latter we may imagine that he had taken measures to produce evidence of pyrexia, though he declared that he had not done so but was genuinely feverish. Natural illness which BROWNING said he suffered from may have accounted for the collapse. On the other hand, both it and the drowsiness may have been produced by toxic agents. It would be interesting to know whether any of the symptoms persist. The albumin in the urine was, according to the prisoner's statement, surreptitiously added, and the blood can obviously be accounted for in the same way. It is not so easy to account for the hyaline and granular tube-casts. Either the man was the actual subject of Bright's disease, the symptoms of which he had exaggerated even to feigning death therefrom, or else some urine from a nephritic patient had been substituted for his own and given to Mr. MARSH for analysis. We are of opinion that Mr. MARSH is blameless for having fallen into the trap laid for him. More, he is to be complimented for the dexterity with which he extricated himself from it. We entirely subscribe to his contention that it should be a legal duty not only to certify the cause of death but also to verify the fact of death.

Annotations.

"Ne quid nimis."

MEDICAL APPOINTMENTS TO THE KING.

THE King has appointed Lord Lister to be Sergeant-Surgeon-in-Ordinary to His Majesty and Sir William Mac Cormac, Bart., K.C.V.O., and Sir Thomas Smith, Bart., Honorary Sergeant-Surgeons to His Majesty. We are glad that His Majesty has decided not to allow these historic appointments to fall into desuetude. The following appointments have also been made. To be Honorary Physicians: Dr. D. McEwan, Inspector-General (retired); Sir James J. L. Donnet, K.C.B., Inspector-General of Hospitals and Fleets; Sir John Watt Reid, K.C.B., Director-General of the Medical Department of the Navy (retired); Dr. A. B. Messer, Inspector-General of Hospitals and Fleets (retired); Dr. H. C. Woods, M.V.O., Inspector-General of Hospitals and Fleets. To be Honorary Surgeons: Sir James Jenkins, K.C.B., Inspector-General of Hospitals and Fleets; Timotheus J. Haran, Inspector-General of Hospitals and Fleets; Sir James N. Dick, K.C.B., Director-General of Medical Department of the Navy (retired); Dr. William H. Lloyd, Inspector-General of Hospitals and Fleets; and Dr. Alfred G. Delmege, M.V.O., Deputy Inspector-General of Hospitals and Fleets.

THE DENTAL HOSPITAL OF LONDON.

IN March the new premises of this hospital in Leicester-square will be occupied. They have been constructed in thorough accordance with modern requirements. The old hospital has long proved to be utterly inadequate for the vastly increasing needs of the charity, and the ample accommodation provided, together with the modern equipments, will be accordingly appreciated. Probably if the freehold of the old site had not been obtained the acquisition of the new premises and building would have been further delayed, much to the detriment of the educational progress of the institution as well as of its real philanthropic work. But owing largely to the munificence of Sir Edwin and Lady Saunders some years ago, together with the substantial help of many members of the dental profession, the freehold of the old site was obtained, and it now proves a valuable asset. The new hospital will therefore start with an ineffaceable debt to Sir Edwin Saunders and his wife. But the growth and progress of this important department of charity are a credit to all the staff and the students. From the commencement of the rehousing and rebuilding scheme to the present time they have contributed no less a sum than £15,450, in addition to £2000 which, as we announced last week, were recently given by the staff—facts which afford an example of self-help that should stimulate the giving of help from without. As the authorities are still appealing for funds it is well that the present financial position in regard to the new hospital should be known. When it was decided to build a new hospital the site upon which it is now erected in Leicester-square, adjoining the older hospital, was in the market. It was decided to purchase this site, and members of the medical and dental professions and patrons of the old hospital subscribed several

thousands of pounds in response to an appeal. At that time the houses upon the site yielded rents which it was intended should help to defray the expenses of building new premises. Soon after the negotiations were completed, however, the London County Council and the vestry decided that the houses were unsafe, so that they had to be pulled down. The rents thus ceased. The managing committee were then faced with a serious problem. Two courses were open to them—either to sell a splendid site or to retain it, costly as it necessarily was, in such an excellent position, and finally to mortgage it and the building when finished. The bankers of the hospital, Messrs. Barclay and Co., came to the aid of the committee and promised to advance the money at 4 per cent. to build on condition that the building was mortgaged on completion and their advances were repaid. The result of this is that the site and hospital buildings are mortgaged for £55,000, at 3½ per cent., to be paid off in 30 yearly instalments with interest, unless large donations or legacies enable the sum to be paid off more rapidly—a contingency which is happily provided for in the mortgage deed. It is to be hoped that generous donations and subscriptions may be forthcoming, in order that the committee of management may be speedily relieved of all anxiety on this score. There can be no doubt that the institution is in the highest sense deserving of support, and hitherto its claims upon the public have, in our opinion, not been sufficiently considered. The administration of a dental hospital involves considerable expense. The staff of the Dental Hospital of London consists of 17 dental surgeons and 11 anæsthetists, all of whom are honorary officers giving up several hours a week to the work. A deserving patient can get extractions with or without anæsthetics and teeth stopped free of cost on presenting a governor's order; while crowns, bridges, and dentures are supplied on payment of small fees partially to defray their cost. It is hoped that these charges will be abolished in future years; they will be abolished if the financial position of the hospital improves as its work becomes better known.

ARSENICAL BEER IN LANCASHIRE.

WE have received a copy of the report of the medical officer of health of the Lancashire County Council, Mr. Edward Sergeant, in which the extent reached by the beer-poisoning epidemic in that county is well and briefly described. The investigation was commenced as soon as it became known that the hospitals of Manchester and Salford were getting crowded with patients suffering from symptoms attributable to peripheral neuritis, and that the origin of the epidemic had been traced to the consumption of arsenically contaminated beer. From Nov. 27th to Dec. 3rd, 1900, inclusive, 78 preliminary samples of beer were taken and of these 27 contained arsenic. Subsequently a letter was sent to the medical officers of health of the various districts affected warning them of the probability of the sugar being used in the manufacture of beer being contaminated with arsenic. Replies were received, showing that patients suffering from symptoms characteristic of chronic arsenical poisoning had been recognised in several districts, and that altogether 372 cases had come under observation. Subsequently to the issue of this circular letter addressed by Mr. Sergeant to the various medical officers of health of the county, and down to Jan. 8th, 1901, 141 samples of beer were analysed, of which 31 were contaminated with arsenic, the largest amount found being equal to three-fourths of a grain per gallon, or more than a maximum medicinal dose per pint of beer. It is, however, satisfactory to note that more recent analyses have shown that the beer supplied to the country districts has improved in character. That the evil has not yet passed away is evident from the fact that two of the samples purchased on Feb. 8th have each been found to contain one-tenth of a grain of arsenic per gallon. Recent inquiries have elicited that generally the patients suffering from the effects of poisoning are improving or have recovered. Some, however, Mr. Sergeant adds, are still seriously ill from the effects of arsenic taken in beer 10 or 12 weeks ago.

THE PERILS OF AN ASYLUM MEDICAL OFFICER.

THE dangers to which asylum medical officers are exposed are well exemplified by the sad case of Dr. Margaret Orange, the assistant medical officer of the London County Council Lunatic Asylum at Claybury. During the year 1899 she was assaulted by lunatics under her charge, being struck behind the ear and also knocked against some iron railings. Leave of absence was granted to her in order that her health might be restored, but so far, we regret to learn, she has not recovered. She was in receipt of salary and emoluments amounting to some £370 per annum, but it now seems likely that she will never be able to earn her living. On Feb. 12th the Asylums Committee of the London County Council recommended that Dr. Orange should be granted a pension of £100 per annum, and this recommendation was adopted by the Council on Feb. 19th. The pension dates from Jan. 24th, 1901. We offer our sympathy to this brave lady upon the cutting short of her career and express our hope that she may yet at some future time be enabled to continue her professional work.

THE HEALTH OF HAVANA UNDER AMERICAN RULE.

MAJOR W. C. GORGAS, United States chief sanitary officer of Havana, has just issued his report upon the hygienic conditions prevailing in that city during the past year. Yellow fever, the disease which is most dreaded by persons of white race inhabiting or visiting Cuba, is shown by the report to stand eighth in the records of deaths for the year. In 1899, the first year of American occupation, there were 103 deaths from yellow fever in the Cuban capital, the lowest number in 10 years, while in 1896 the death record from the same cause was 1282. In 1900 seven diseases caused more deaths than yellow fever in the following order—tuberculosis, 851 deaths; diarrhœa and enteritis, 506 deaths; organic diseases of the heart, 443 deaths; meningitis, 395 deaths; diseases of the arteries, 357 deaths; malaria, 344 deaths; and pneumonia, 319 deaths. Typhoid fever, diphtheria, small-pox, and other epidemic diseases caused comparatively small mortality. There were a considerable number of fatal cases of tetanus. In the 12 months covered by the report 1244 cases of yellow fever occurred, 920 of which were among Spaniards with a death-rate slightly above the average death-rate for the city, which was 24·90. Among the Americans there were 235 cases. Of all cases about two-thirds had been in Cuba less than one year, the large majority being recently arrived Spanish immigrants. The immigration has been very large, the last four months of the year giving a little more than 11,000. The report declares that the effect of the measures adopted for ridding Havana of the foci of infection has been very marked. Of the 857 occupied blocks making up the city 452 have had one or more cases of yellow fever in them. In these blocks are 26,701 houses; 885 have shown evidence of infection by having had one or more cases. Of the 885 infected houses 694 were successfully disinfected by one disinfection, as shown by the fact that they had only one case; 130 required two disinfections, that is, of the 885 infected houses all but 61 were freed from yellow fever after the second disinfection. These results

demonstrate the success of careful isolation and prompt disinfection. Of the 24,000 immigrants into Havana during the year 21,000 came from Spain, which fact explains the large proportion of Spaniards among the cases of yellow fever. In 1900 Havana had a smaller number of deaths than in any one of the preceding 10 years; 1893 was next with 6697 deaths, some 500 more than last year. The average number of deaths for the 10 years up to 1900 was 10 243. Last year there were 4000 less than this average. The death-rate for 1900 was 24·40, while the lowest of the preceding 10 years, 1893, was 30 66, and for the first year of the American occupation, 1899, it was 33·67. It is noticeable in the list of deaths that a large proportion of the fatalities occurred among white males. This is due to the fact that a large portion of the population of Havana is composed of foreigners, and these foreigners are almost entirely white males, the male population of Havana greatly outnumbering the female. The report ends by saying that it is not too much to state, judging from results, that the measures, sanitary and otherwise, which have been taken by the American authorities with a view of improving the health of Havana have been most eminently successful. This work has reduced the death-rate of 1898, the last year of Spanish rule, from 91·03, which represents 21,252 deaths, to 24·40, representing 6102 deaths; and the methods pursued have caused a steady improvement in the sanitary conditions of Havana. Taking the average number of deaths per year for the 10 years at 10,243, which would be for the two years 20,486, as representing what the deaths would have been if the United States had not interfered in Cuban affairs, and deducting from this the actual number of deaths (14,255) which have occurred in the two years of the American occupation, we have 6231 as the number of lives saved in the city of Havana by the efforts of the American authorities. Too much stress must not, of course, be laid upon such calculations and deductions, but it is undoubted that the United States are to be congratulated upon some sterling sanitary work.

THE LUMBAR INJECTION OF COCAINE AS AN ECBOLIC IN THE INDUCTION OF LABOUR.

A CORRESPONDENT recently[1] laid before our readers a summary of American and continental observations of the value of lumbar sub-arachnoid injections of cocaine in surgical practice. We desire now to call attention to the communications of M. Doléris to the Académie de Médecine, to the Paris Society of Obstetrics and Gynæcology, and, lastly, on Feb. 11th to the Medico-Chirurgical Society of Paris. In these communications M. Doléris confirms what had been recognised as the physiological action of cocaine on blood-vessels and on muscular tissue, and in addition to its already proved analgesic properties he refers to its ecbolic powers, or, as he terms them, its *action ocytocique*. As regards the uterus, M. Doléris maintains that this power of exciting muscular contraction may be a counter-indication of cocaine when version has to be performed, although Kreis has published a case of podalic version by the Veit-Smellie method after a lumbar injection of cocaine. M. Doléris points out that three independent observers, Kreis, Dupaigne, and himself, have now published over 100 cases of the effect and value of cocaine in labour. The anæsthesia persists while the uterine contractions are strong and succeed each other rapidly, the cervix dilates regularly and quickly, and the condition of the child is excellent. These effects were further proved on Oct. 8th, 1900, when M. Doléris performed Cæsarean section for contracted pelvis in a case in which analgesia was obtained by the injection of one and a half centigrammes of cocaine into the lumbar sub-arachnoid space. The result was strikingly satisfactory, the uterus remaining firm and contracted after the extraction of the child and while the uterine sutures were being applied. In no previous Cæsarean section had M. Doléris observed such thorough and prolonged uterine contraction. In uterine inertia the effect of the injection of one centigramme (about one fifth of a grain) of cocaine is similar. Finally, M. Doléris attempted successfully to prove that such injections sufficed to provoke uterine contraction apart from all natural commencement of labour. He has given details of two cases of induction of labour by means of the injection of the small dose of one centigramme of cocaine. In the first case a patient was sent to him with the correct diagnosis of a seven months pregnancy, the fœtus being dead and macerated. The patient was kept in hospital for three weeks under observation. The cocaine was then injected and 15 minutes later the uterus, which had been inert and limp for about a month, contracted regularly and vigorously for one and three-quarter hours without arousing any pain. The os uteri was then of about the size of a five-franc piece. As the analgesia passed off the uterine contractions became less powerful and labour continued normal, being completed in six hours and 20 minutes. This comparative rapidity may be noted in contrast with the slowness of dilatation in most cases of macerated fœtus. In the second case the onset of labour was even more rapid. The patient, a multipara pregnant eight months and one week, was *in extremis* with advanced tuberculosis. Nine minutes after the injection the uterus contracted vigorously, the pains following each other every three minutes, the labour being completed in four and a half hours. M. Doléris thus maintains that the spinal injections of cocaine act with certainty on the motor nerves of the uterus and form a new method of inducing labour, and that they are of great value in the treatment of uterine inertia. He has had no accident in 78 cases. A considerable amount of confirmatory evidence must be forthcoming before these observations of M. Doléris can be accepted as holding good in all cases. One of the main objections hitherto urged against the use of lumbar injections of cocaine in midwifery is that the drug tends to produce uterine inertia and abolishes the action of the abdominal muscles. It is a pity that the records of cases of parturition treated in this way do not give us fuller details upon this important point. It is a striking fact that in 40 cases Marx had recourse to the use of forceps in no less than 16, a very high proportion. M. Doléris's present contention is the more striking since in quite a recent communication he advocated the dilatation of the vagina and perineum by the use of hydrostatic bags as a means of hastening delivery in cases of labour in which analgesia had been produced by lumbar injections.

[1] THE LANCET, Jan. 12th, 1901, p. 137.

DISINFECTION OF THE HANDS.

As was recently stated in these columns[1] the results obtained with Schleich's *Wachsmarmorstaubseife* by several observers were all more or less contradictory, and that not only with regard to the claims of the inventor himself but also *inter se*. It occurred, therefore, to Dr. Deeleman to inquire into the matter, so that the question might be set at rest once for all, and accordingly he instituted a series of experiments with the discredited preparation and has recorded his verdict in the *Deutsche Militär ärztliche Zeitschrift*. The conclusions arrived at, although in some respects at variance with Schleich's assertions, are, nevertheless, on the whole in favour of the efficacy of the compound, which the investigator pronounces to be "a remarkable means of disinfection for the hands." It is absolutely necessary, however, that before using it the nails should be cut as short as possible and also that every

[1] THE LANCET, Oct. 27th, 1900, p. 1220.

endeavour should be made to clear out all fissures and furrows, whether natural or artificial, and to render the skin of the hands as soft, smooth, and pliant as possible. In order to prepare Schleich's "mechanical disinfector" 750 parts of resinous soap (clear yellow in colour, freshly made, and cut up into small pieces), having been dissolved in 1500 parts of hot water, should be placed upon a fire with 150 parts each of stearine and wax. As soon as the last named substances are melted 700 parts of powdered marble should be poured in very slowly, the mixture meanwhile being carefully stirred. The loss from evaporation (usually about 300 parts) should next be made good and then boiling be allowed to continue until the mixture becomes of the consistency of syrup, the last part of the process generally lasting about half an hour. As soap produced in this way is said to cause slight epidermic erosions in tender skins it would be prudent to avoid making use of it in laboratories where preventive serums of an infectious disease were being manufactured.

SPECIAL OPHTHALMIC NUMBER OF THE "INDIAN MEDICAL GAZETTE."

IN the January number of the *Indian Medical Gazette* it is announced that a special Ophthalmic Number will be issued in a few months. Everything will be done to make this forthcoming number representative of ophthalmic surgery in India at the present day, and circulars have been sent by the editor to ophthalmic surgeons throughout India inviting information on points of interest in connexion with diseases of the eye and its appendages, and especially on the subjects of cataract, trachoma, and errors of refraction. The replies to these circulars are to be addressed to Major W. J. Buchanan, I.M.S., Editor *Indian Medical Gazette*, Bhagalpur, E.I. Railway, or to the Editor, *Indian Medical Gazette*, care of Messrs. Thacker Spink and Co., Calcutta. On account of the great field for ophthalmic operations which exists in India our contemporary's collective investigation cannot fail to be of practical importance and will form an interesting contribution to ophthalmological literature. Last year the same journal brought out a special number devoted to the treatment of stone in the bladder, allusion to which has already been made in our columns.[1]

CREASOTE IN PNEUMONIA.

IN a paper read before the Central Texas Medical Association Dr. J. L. Van Zandt drew attention to the advantages to be obtained by the use of creasote or preferably creasotal in pneumonia. After giving his own experience, which he said was satisfactory, Dr. Van Zandt quoted several passages from the writings of other physicians, all speaking highly of this method of treatment. Dr. Van Zandt spoke in enthusiastic terms of the results he had obtained. At first he gave one drop of the drug every three hours, but latterly he had prescribed seven and a half minims of creasotal. This appears to be a large dose, but he states that "others give larger doses with possibly better results or no harm." He adds: "I have had cases in which the fever was gone in from 24 to 48 hours, and I am now somewhat disappointed if my patient is not ready for dismissal by the third or fourth day." In conclusion, Dr. Van Zandt expresses his opinion "that the use of creasote or carbonate of creasote in the treatment of pulmonary inflammation is one of the greatest life-saving discoveries of the century just ended." We cannot adopt Dr. Van Zandt's extremely laudatory attitude towards creasote, but in some affections, notably of the gastro-intestinal tract, it is undoubtedly a most useful drug. At one time it was extensively used in pulmonary tuberculosis, but is now not nearly so frequently employed; indeed, many authorities consider that its great advantage in cases of tubercle is not due to any selective action in the bacillus of tuberculosis, but to its preventing fermentative changes in the digestive tract, thereby greatly improving the power of digestion or absorption of food. With regard to its use in pneumonia we prefer to suspend our judgment. The recognised treatment of this affection is mainly expectant—to preserve the patient's strength as far as possible and to endeavour to lower the temperature should it continue raised too long. We think that creasote might be tried in this country more extensively than it has been, for the evidence brought forward by Dr. Van Zandt is certainly strong.

[1] THE LANCET, Jan. 19th, 1901, p. 193.

MILK-SUPPLY AT ASHTON-UNDER-LYNE.

AT the last meeting of the town council of Ashton-under-Lyne an important step was taken towards reducing one of the factors contributing to the high infant mortality so discreditable to our manufacturing districts. The sanitary committee have been recommended to purchase "two 'Wyvern' sterilisers complete, one milk receiver, one measuring and mixing tub, two cream cans, one bottling machine, one 3-h.p. boiler, and other apparatus." A shop is to be taken for sterilising and humanising milk, and a competent manageress is to be obtained. Mr. Shaw, in moving the adoption of the minutes, contended that the proposed scheme was closely related to the question of the infant death-rate, and the committee had adopted what they believed to be one of the best schemes in the country. The milk is to be called "modified," not "humanised," and it is to be sold not only in bottles for infants' food, but in pints and quarts for general use. The whole of the medical profession in the town are said to support the scheme. Mr. Shaw anticipated "that eventually it would become a source of profit." Indirectly it will almost certainly become profitable by diminishing sickness and lowering the death-rate, provided that it is efficiently carried out and made use of by the people, and we may wish for it every success.

PUBLIC HEALTH IN THE STRAITS SETTLEMENTS.

THE estimated population for the whole of the Straits Settlements for 1899 was 604,916, as compared with an estimated population of 592,587 for 1898. The number of births registered during 1899 was 14 537, and the number of deaths registered was 19 150, giving a birth-rate of 24 03 per 1000 of the population and a death-rate of 31·16 per 1000. In his "Annual Medical Report on the Straits Settlements Civil Hospitals for the year 1899," Dr. Max. F. Simon, the principal civil medical officer, says that small-pox was the only epidemic disease prevalent during the year, over 300 cases occurring in Singapore. The whole number of admissions to hospital during 1899 was 22,835, and the number of deaths was 3432. The five diseases under which the greatest number of admissions to all the hospitals was returned in 1899 were as follows: venereal diseases, 2523 (with 88 deaths); malarial fevers and cachexia, 2336 (with 148 deaths); beri-beri, 1793 (with 589 deaths); rheumatism (acute and chronic), 1137 (with two deaths); and dysentery, 913 (with 313 deaths). The hospitals in Singapore of which statistics are given are the General Hospital, the Prison Hospital, Tan Tock Seng's Hospital, the Leper Hospital, the Lunatic Asylum, and the Maternity Hospital. In Singapore the highest shade temperature for the year was 88° F. in May and the lowest was 71° in February. The total rainfall was 103·36 inches. A small outbreak of plague which happened in Penang during May, June, and July is reported on by Dr. T. S. Kerr, the colonial surgeon. There were 49 cases, including 46 Chinese, one Malay, and two Tamils; 39 died. A large proportion of

the seizures occurred in brothels and 19 of the Chinese patients were females.

BRITISH CONGRESS ON TUBERCULOSIS.

AT this congress, which is to be held in the Queen's Hall, Langham-place, London, W., in the week beginning July 22nd, 1901, it has been arranged amongst other matters for three public addresses to be delivered in the arge hall on Tuesday, Wednesday, and Thursday of that week. The first will be given by Professor Koch of Berlin, the second by Professor Brouardel of Paris, and the third by Professor J. McFadyean of the Royal Veterinary College.

CLINICAL SOCIETY OF LONDON.

ON March 8th the Clinical Society of London will hold a discussion at 20, Hanover-square, W., on the recent epidemic of enteric fever among the troops in South Africa. It will be opened by Dr. Howard H. Tooth with a paper on Some Personal Experiences of the Epidemic in the Orange River Colony. It is understood that Sir William Church, Sir Dyce Duckworth, and Professor A. E. Wright of Netley will speak at the meeting. The principal points to be raised by Dr. Tooth in his paper will be as follows:—1. The origin of the epidemics: In the camp at Modder river; relation of the Bloemfontein epidemic to that of Modder river. 2. The dissemination of the disease: (*a*) Water: At Modder river camp (the Modder, the Riet, and wells); at Bloemfontein (the spring, wells, and latterly the waterworks). (*b*) Sandstorms. (*c*) Flies. (*d*) Personal infection from man to man. 3. Precautions taken to prevent the spread of the disease: boiling and filtering of the water; the sinking of wells; latrine arrangements, the disinfection of evacuations. 4. Preventive inoculation: figures relating to patients admitted to the Portland Hospital; inoculated and non-inoculated compared in respect of severity of symptoms and mortality; general remarks on inoculation; probable value of the reaction as a measure of natural immunity. 5. Some remarks on treatment. It will be seen that Dr. Tooth's paper deals with matters that are of exceptional interest just now to the public as well as to the medical profession.

CASES OF SPINA BIFIDA TREATED AS OUT-PATIENTS BY OPEN OPERATION.

IN the present issue of THE LANCET we publish an account of three cases of spina bifida in the cervical region which were under the care of Dr. James H. Nicoll in the out-patient department of the Glasgow Royal Hospital for Sick Children. Dr. Nicoll treated them all, as he has treated many others, by the open operation and then sent the patients home to be looked after by their mothers. In all the cases the wounds healed by first intention, and the patients recovered completely and remained well. At the present time much more serious cases are treated in the out-patient department than formerly and this is chiefly to be attributed to the practical certainty of the asepsis of modern surgical wounds. The advantages of a mother's care of a child are not to be denied, and in Dr. Nicoll's cases there was the safeguard of the superintendence of hospital sisters who visit at the patients' homes and see that the nursing is carried out satisfactorily. Without venturing to criticise the practice of treating cases of spina bifida as out-patients—for the results attained by Dr. Nicoll may be reasonably claimed to justify the method—yet we may point out that there is no region of the body in which sepsis is so fatal as it is in the brain and spinal cord, and that therefore a displacement of the dressing might easily prove fatal. The supervision by the hospital sisters of the nursing in the home goes far to obviate the risk of the occurrence of this danger, but it does not entirely remove it. It would be of interest to have a list of all the cases which Dr. Nicoll has thus treated. Such patients can, of course, be treated as well at home as in a hospital if the nursing is adequate, but that is the great difficulty experienced in dealing with patients of the class who attend the out-patient department of a hospital.

THE NEW SYDENHAM SOCIETY.

IN another column we publish a letter from Mr. Jonathan Hutchinson to which we would direct our readers' earnest attention. Although as Mr. Hutchinson says of the New Sydenham Society, the "*raison d'être* of the society has been to a large extent removed," it has done such admirable work in the past that it would be a thousand pities if its existence were to cease. The proposed "Atlas of Pictorial Aids to Diagnosis," an advertisement of which scheme appears in our present issue and a description of which is given in Mr. Hutchinson's letter, would undoubtedly be of great value. Pictures are the books of the unlearned and all of us are unlearned in some or other department of our profession. For every one of us there exists some disease or condition which he has never seen but which at any time he may be called upon to diagnose. The present membership of the New Sydenham Society is nearly 1400. To make the new scheme a success at least 2000 members are required. We trust that the additional 600 members will be obtained.

A LEAGUE AGAINST HOOLIGANISM.

THE Twentieth Century League held an inaugural meeting at the Mansion House on Friday, Feb. 22nd. The influential character and considerable size of the meeting show how deeply the object of this league—viz., to remedy the neglect that has led to the present condition of disorder among the young portion of the community in and around London—affects the public interest. That a condition of grave disorder largely exists none can doubt who reads a daily newspaper. That Hooliganism, to use a convenient and inclusive expression, is an inevitable accompaniment of the growth of great cities unless special steps are taken to repress or prevent the evil is no doubt true, and that such steps have in London been hitherto inadequate is, we are afraid, equally the case. The Twentieth Century League will have the sympathy of all our readers and perhaps the active support of younger members of the medical profession whose time permits them to take a part in such enterprises as these, for which their elders can spare only the support of goodwill or subscription. Among the best institutions for carrying out the class of work which the Twentieth Century League intends to foster and extend are settlements in connexion with the Universities and the great public schools, and among the best workers at such centres there are usually to be found a sprinkling of young medical men. Their close association in hospital work with the class to whose physical and moral welfare the settlements are devoted often gives men of our profession a sympathy with, and an influence over, young men and women of the poorer classes that are not usually accorded to the ordinary man of education. Moreover, to the youths for whom cricket, football, gymnastics, or boxing are not, for one reason or other, available, a class in the rudiments of first aid to the injured is often one of the most popular occupations for winter evenings. Such classes and similar instruction for young women in the elements of nursing and care of children are usually conducted by young medical men. The chief aim of the Twentieth Century League will be to get hold of boys and girls on leaving school and provide them with means for adequate exercise and rational amusement under proper conditions. The great difficulty, judging from what we know of present institutions with a like aim, is to find a large enough number of active supporters. Here,

too, the medical profession may, by turning into a useful channel the misspent energies of many a young woman and man who suffers from having much money and no aims, benefit both their own patients and the girls and boys of the poor and general public. It is obvious that the national welfare is largely bound up in the proper evolution of thousands of poor boys and girls into men and women sound in body and mind. To insure such a future for the younger members of the poorer classes of London is the object of the Twentieth Century League and it will meet with the support of every right-minded citizen and the especial sympathy of the medical profession.

THE GOVERNMENT AND THE LICENSING LAWS.

MR. WHITTAKER'S amendment to the Address led to a speech from the Home Secretary which goes far to remove the impression of indifference or helplessness on the part of the Government left by his previous speech to a deputation. We wait hopefully for the promised Bill. All other countries are alive to the importance of the drink question and neither the violence of faddists nor the interests of political parties ought to be allowed to interfere with reasonable legislation.

THE POOR-LAW MEDICAL SERVICE OF THE HIGHLANDS AND ISLANDS OF SCOTLAND.

WE have received a copy of a petition which the Poor-law medical officers of the Highlands and Islands of Scotland have addressed to the House of Commons asking the consideration of the House for the onerous and unfair conditions under which they hold office. The petition points out that the Local Government Board of Scotland have no powers to deal with the grievances complained of without further legislation. The board, for example, cannot ensure proper holidays for the medical officers by providing that the parish councils shall pay for substitutes to do the work during the absence of the medical officers on vacation, though the board has expressed its sympathy with such a reform. The Poor-law medical service of Scotland does not compare favourably with the similar services in England and Ireland, as we have pointed out often in our columns. In Scotland parish councils have the power to dismiss their medical officers with a few weeks' notice and without a reason, whereas in England and Ireland the approval of the respective Local Government Board of the country has to be obtained. The medical officers of the Poor-law districts in Ireland have been conceded the right to an annual holiday of reasonable length, the parish councils or boards of guardians being empowered to pay for qualified substitutes. No such just treatment has been extended to the medical officers of the poorer districts of Scotland. The medical officers of the Highlands and Islands of Scotland receive salaries which are completely inadequate to the work that is demanded of them, while the rise in the fees of locum tenents places any idea of their availing themselves of such services out of the question. The petition prays that the same fixity of tenure should be afforded to the Poor-law medical officers in Scotland as is afforded to Poor-law medical officers in England and Ireland; that during an annual holiday of reasonable length a substitute should be paid by the parish; that during illness contracted or accident met with in pursuance of professional duty the parish council should pay a substitute, or alternatively should insure the medical officer against sickness or accident; that a free official residence should be provided for the parish medical officer, an adequate salary, and a satisfactory superannuation allowance. There is not a word in this most reasonable petition which does not meet with our heartiest support. We have on previous occasions dwelt more upon the necessity of the tenure of these posts being fixed than upon other points, but to grant the medical officers fixity of tenure in posts where their arduous work is rewarded with no vacations, no pension, and little salary, is not a conspicuous kindness. We trust that the House of Commons will find time to right the grievous wrongs of the Poor-law medical officers in the Highlands and Islands of Scotland. The petition only asks for what is just.

UNCERTIFIED DEATHS.

A DEPUTATION from the General Medical Council had an interview on Thursday last on the above subject with the President of the Local Government Board. The deputation consisted of Sir William Turner, Sir Dyce Duckworth, and Dr. J. G. Glover. The Registrar-General, Dr. Tatham (Superintendent of Statistics at the General Register Office), and Mr. Power (Principal Medical Officer to the Local Government Board) were also present.

DRUG HABITS IN THE UNITED STATES.

THE New York School of Clinical Medicine has established a special department of neurology, of which Dr. T. D. Crothers of Hartford, Conn., has been elected professor—viz., the study of the neuroses and psychoses of alcoholism and of drug habits. Dr. Crothers is announced to deliver immediately a course of clinical lectures on inebriety from alcohol, opium, chloral, cocaine, and other narcotics. These lectures appear to be timely, for the diseases dependent upon or associated with the abuse of alcohol, opium, chloral, cocaine, and other narcotic drugs are steadily increasing in the United States of America, and the demand for special treatment in institutions and retreats is becoming more pressing every year. The last number of the *Quarterly Journal of Inebriety* has the following words in a leading article: "All the large public hospitals and asylums in the States have wards and rooms for alcoholics and drug-takers, and the same demand for treatment is seen in private practice in the increasing number and urgency of such cases." It is also important to notice that there is practically very little special literature dealing systematically and authoritatively with the nature and treatment of these neuroses. As a consequence this field is largely occupied by charlatans and irregulars, who, with innumerable specifics and secret drugs, claim the most marvellous results. We hope that the departure of the New York School of Clinical Medicine, in giving exact systematic instruction in these diseases, will be welcomed by the medical profession in the United States.

THE Executive Committee of the General Medical Council publish the following analysis of the voting at the election recently held in Ireland of a Direct Representative to be a member of the Council for the ensuing five years.

	Votes.
For Sir William Thomson	1130
For Mr. Thomas Laffan	245
Spoiled votes	21
Votes received too late	29
Papers returned by Dead Letter Office	51
	1476
Did not vote...	1283
Total number of voting papers issued ...	2759

IN our Manchester correspondent's letter last week reference was made to the memorial which it is proposed to establish of the late Professor Tom Jones. To-day we print in another part of THE LANCET a letter from the supporters of the movement together with a list of some of the contributions already promised. As it is desired that all who participate in the proposed tribute to the deceased

professor's memory should do so from the dictates of their hearts there will be no canvassing.

AT a meeting of the Council of Owens College held on Feb. 20th Mr. R. B. Wild, M.D., M.R.C.P. Lond., M.Sc. Vict., was appointed, subject to the approval of the court, Professor of Materia Medica and Therapeutics. The late Dr. D. J. Leech held the chair for 19 years with great benefit to the medical school and the council decided that his name shall henceforth be associated with it, so that the professorship will be called the Leech Professorship of Materia Medica and Therapeutics.

THE Society of Apothecaries of London have presented an address to the King expressing the Society's sincere condolence on the death of the late Queen "after a reign without parallel in history," congratulating the King upon his accession, and praying "that your Majesty's reign may be a long and happy one, and that every blessing may attend your Majesty and your Royal Consort, Queen Alexandra."

A TELEGRAM from the Governor of the Cape Colony, Sir Alfred Milner, to Mr. Chamberlain, received at the Colonial Office on Feb. 21st, states that the bubonic plague report for the week ending Feb. 16th notifies a total of 20 cases, the patients being one European and 19 coloured people. There were also three deaths and 104 "contacts," all coloured people.

A TELEGRAM from the officer administering the Government of Mauritius to Mr. Chamberlain, received at the Colonial Office on Feb. 22nd, states that for the week ending Feb. 21st 16 fresh cases of plague occurred, 10 of which were fatal. The total deaths from plague amounted to 13.

THE Goulstonian Lectures of the Royal College of Physicians of London, the delivery of which was arranged for March 12th, 14th, and 19th, are, owing to the illness of the lecturer, postponed to a later date, of which due notice will be given.

UPWARDS of £600 have already been subscribed towards the erection at Norwich of a memorial statue to Sir Thomas Browne.

HISTORY OF RENAL SURGERY.

BY DAVID NEWMAN, M.D., F.F.P.S. GLASG.,
SURGEON TO THE GLASGOW ROYAL INFIRMARY.

1.

THE classification of diseases of the kidney into surgical and medical was, not more than 15 years ago, questioned as being an arbitrary one, but now that the arrangement is accepted, the importance of a knowledge of renal surgery is fully recognised by the profession, and its special study is placed in the position to which it is entitled by the great advances which have been made during the period mentioned. Without invading the sphere of the physician the surgeon has come to his assistance and at the same time extended his own field of operation. But in order that the best results may be attained the physician and the general practitioner must work hand in hand with the surgeon, and endeavour to recognise the cases at an early stage in the disease that are likely to be benefited by surgical treatment. Only by such cooperation can the highest achievement be gained.

Seeing that it is one of the internal organs that is affected the patient naturally looks to the physician for relief. The medical attendant who makes an early diagnosis renders to the patient a service as valuable as that of the surgeon who at a later date performs a successful operation. Doubtless many diseases of the kidney are difficult to diagnose in their incipient stages even after careful analysis of the symptoms and physical signs; therefore, anyone who desires to form a correct diagnosis, with the view to operative interference, must be familiar with the very intimate relationships existing between the various parts of the urinary system. In other words, the surgeon must not only be thoroughly acquainted with his own special department, but he must also have a knowledge of that sphere which has been conventionally assigned to the physician.

Although conceived at a very remote period in the history of our art, the birth of renal surgery, as we now know it, cannot be placed at a more distant date than 30 years ago, and therefore it must be regarded as one of the youngest branches of surgical outgrowth. Its early conception and its very slow development cannot fail to be of interest to those who have witnessed its rapid and vigorous growth in our own time. A study of the early history of the subject will show how far the highly developed surgery of the present day is indebted to the thought and labours of the ancient apostles of the healing art. Their early efforts are not now well known, and therefore have not been fully appreciated in our time. It is remarkable how much information can be gathered from a study of the writings of eminent physicians in the remote past. They, like the observers of the present day, gained their knowledge from practical experience with the phenomena of disease; they showed wonderful perseverance in collecting facts, in separating truth from error, and with these faculties they combined an extraordinary ability for generalising and or enunciating principles, and a power of publishing them *virum volitare per ora*. Francis Adams of Banchory, in Aberdeenshire, a man of great learning and most conversant with ancient medical lore, who translated from the Greek the seven books of Paulus Ægineta, as well as the works of Hippocrates, remarks in his preface (1833):

> It appears to me that, at certain periods of ancient times, the standard of professional excellence was such as would not easily be attained at the present day, with all our vaunted improvements in knowledge; and that many of those early masters of our art were distinguished for varied stores of erudition, an ardent love of truth, and an aptitude to detect the fallacies of error, such as few of us even now can lay claim to.

While their opportunities were hampered by a lack of the exact scientific knowledge and the methods and the means of investigation which we now possess, the acuteness of their observations is surprising, and their descriptions of symptoms, their prognoses, and their indications as to treatment are so clear that the individual diseases can now be easily recognised and placed in our nomenclature. Hippocrates (B.C. 460), who is rightly regarded as the "father of medicine," held that to become an eminent physician it was not only necessary for the student to cultivate an acquaintance with the structures and functions of the human subject, but also to be skilled in logic, astronomy, and the other sciences. 2000 years before Europe gave John Locke, philosopher, philanthropist, and physician, the credit of introducing the methods of inductive philosophy into this country, and before the great learning and superior judgment of his friend Sydenham advanced medicine, Hippocrates studied and taught according to the same strict principles. He says:—

> The physician must be able to tell the antecedents, know the present, and foretell the future—must meditate these things, and have two separate objects in view with regard to diseases—namely, to do good or to do no harm. The art consists of three things, the disease, the patient, and the physician. The physician is the servant of the art, and the patient must combat the disease along with the physician.

Hippocrates mentions diseases of the kidney in many passages of his works, and he recommends incision to be made in cases of abscess in order to furnish an outlet for the pus. It has been a matter of dispute whether Hippocrates advised the incision of the kidney or simply the evacuation of perinephric abscesses, but as abscesses of the kidney are much more common than collections of pus around the organ, the probability is that the earlier operations were performed for pyonephroses, and that in some instances calculi also were removed. In his treatise on internal affections four diseases of the kidneys are described.

> Four diseases originate in the kidneys. Under the first the patient suffers in the following way, violent pain arises in the kidney, the groin, and in the testicle of the same side. A frequent discharge of urine changes to stoppage; with the urine sand is discharged, which causes violent pain. After the discharge the pain ceases, and then returns in like manner. During the discharge of urine the pain is sometimes so severe that the patient has to rub the penis. Many doctors who are not acquainted with this disease think, when they see

the sand, it must be a vesical calculus, but this is not the case; it is more likely to be stones in the kidney. This disease is caused by mucus which the kidneys absorb, but do not give out again, and thus small stones like sand are formed. In such a case perspiration should be caused by the root or juice of Scammony, but an aperient must first be given. The following day another aperient should be given, administering at the same time a drink composed of 2 measures (equal to 7 litres) of a decoction made from chick-peas and salt. After this the patient should be treated with regard to drinks, food, and baths, as in a case of *strangury*, and the same medicines should be used. During the attacks of pain the patient should be bathed frequently and warm poultices applied. If however, a swelling should arise, it will be necessary to cut into the kidneys, remove the matter, and take away the sand by means of diuretics. After cutting, there is a chance of recovery, otherwise the disease generally ends in death.

Under the second disease, the pain is as violent as in the first case. The suffering begins after great bodily exertion, which tears the small veins leading to the kidneys, and causes the latter to fill with blood. If this happens, the patient passes blood with the urine and afterwards matter. If the body is allowed to rest, recovery will be quick; on the other hand if it is moved ever so slightly the pain will last much longer. If the kidney fills with matter, a swelling will appear near the spine. Under such circumstances, the swelling must be cut, and if possible deep towards the kidney. If this succeeds there will be almost immediate recovery, but if unsuccessful, there is the danger of an abscess forming which will require longer treatment. Should the abscess close, the hollow in the kidneys will fill with matter. If the latter breaks through and goes off by the anus, there is hope of recovery; but if the other kidney be drawn into sympathy, there follows great danger of death. The same medicines, treatment and diet should be observed as in the foregoing case. The diseases are dangerous, and many fall, in the end, into phthisis of the kidneys.

Under the third disease, the urine resembles the bray of roast beef. The pain is caused by the black gall flowing into the small veins leading to the kidney, which causes ulceration of the veins and kidney. Matter is mixed with the urine. Immediately there arises pain in the groin, the bladder, the perinæum, and even the kidneys themselves. It soon relaxes, returning again violently, often going into the stomach. Under these circumstances Epithymum or Scammony root should be given. If the pain lasts, and there is strangury, frequent warm bathing and poultices should be applied. Prescribe a drink made from boiled wheaten flour and honey, also a soothing diet, giving Mendes Wine with honey, or other sweet white wine suitably diluted. The disease does not easily give way. According to the time of year give whey or milk, the former till purgative action takes place; the milk cure, however, is continued for 45 days. Under this treatment the disease will be cured.

The fourth disease arises from the gall and mucus, chiefly in summer time, and also after sexual excess. The patient feels pain in the side, in the groins, and in the inguinal region, and in the muscles; he cannot lie on the healthy side, suffers fearful pain, and feels as if something were torn in the side. The feet and ankles are always cold, urine is passed with difficulty on account of the mucus, and if the urine is allowed to stand, a sediment is left like flour. If gall predominates the urine is slightly red, and if mucus, white and thick. The symptoms may last a year, and suffering during that time becomes more acute. If a swelling appears during suppuration, it should be cut. A purgative and warm baths should be given in the treatment of the disease, and the patient should be kept warm.

The first class here is easily recognised as renal calculus associated with repeated obstruction of the ureter, and with transitory hydronephrosis or pyonephrosis, while the second is a clear description of rupture of the kidney from severe strain or injury. The likelihood of an abscess following a traumatism is also fully recognised, and its prognosis and treatment clearly indicated. The third and fourth classes are not so easily recognised and are probably descriptions of infective renal diseases associated with vesical and urethral disorders.

While Hippocrates certainly advocated incision in certain cases it is evident that the practice was not followed by the ancients, and the Arabian writers only casually refer to it. Celsus, who lived and taught at the beginning of the Christian era, condemned operations upon the kidney, and this opinion prevailed almost universally until our own day. This retrogression from the teaching of Hippocrates undoubtedly retarded any progress in renal surgery. Celsus, who flourished during the reign of Augustus, writing on diseases of the kidney associated with hæmaturia and pyuria, is by no means clear in his descriptions and it is difficult to be certain if he distinguished between the symptoms of renal calculus and of stone in the bladder. He, however, paid attention to injuries and contusions of the kidney.

Ruffus Ephesus,[1] who lived in the time of Trajan, is one of the oldest writers on diseases of the kidney. He was probably prior to Galen (A.D. 130), and perhaps to Aretæus (A.D. 120) and certainly to Cœlius Aurelianus. Francis Adams in his translation of Paulus Ægineta[2] says regarding Ruffus:—

As we have seldom occasion to meet with him in our researches, we shall give a fuller abstract of his opinions on this subject than we would otherwise have done. The symptoms of inflammation of the kidneys, as detailed by him, are pains below the loins, so that the patient cannot stand erect nor walk, but it obliged to lie upon his back, which position affords him most relief; the pains extending to the bladder and testicles; the extremities cold, more especially the legs and feet; frequent and painful desire to make urine, which is at first thin and watery, but afterwards becomes redder. These symptoms are followed by emaciation of the thighs and hips, debility of the limbs, and sometimes suppuration. His treatment is as follows: The patient is to be laid on a soft couch, and must abstain from food for one day, but long abstinence is forbidden. If the bowels require to be opened, this is to be done by means of emollient clysters, such as injections of hot water, decoctions of mallows, of linseed, or of fenugreek, to which may be added some oil. Large injections, however, are forbidden, lest they press upon the kidneys and occasion irritation. When the bowels are evacuated, and yet the pain does not remit, the parts may be wrapped in wool which is smeared with hot oil having rue, marsh-mallows, dill, or mugwort boiled in it. When the pain is acute, a vein at the elbow is to be opened after which emollient cataplasms and plasters are to be applied to the back when the kidneys are affected, and to the fore parts when the bladder. When these remedies fail to remove the pain, the loins and groins are to be cupped, and then sponges squeezed out of hot water are to be applied, and the patient put into a hip-bath of hot water in which poppies, chamomile, and the like have been boiled. Then, when the patient is laid in bed, let him be fomented with bladders half-filled with oil and water; and afterwards let cerates of the oil of privet, &c., or fragrant malagmata be applied. When the pain is excruciating, he directs us to give a decoction containing opium and the heads of poppies. In due time diuretics are to be administered, such as the root of acorus, ground-pine, cassia, spignel, parsley, sea urchins, radishes, carrots, and the like. When an abscess is formed, there is a discharge of tawny and more natural urine, there is swelling in the loins, strong heat in the kidneys, and the pain becomes duller with irregular fever. The abscess bursts either into the bladder or intestines. Praxagoras, he says, related a case in which there was pus voided by the anus for twelve years and probably longer. When it bursts into the bladder, pus is voided with the urine. Suppuration is to be promoted by frequent fomentations with sponges, by cataplasms of barley-meal with a decoction of figs in mead or wine, to which may be added pounded wormwood, spurge, &c. For promoting the rupture of the abscess, diuretics are prescribed, such as wild marjoram, mock dittany, and the like. When the abscess does not burst, acrid clysters containing black hellebore, radishes, garlic and the pulp of colocynth are to be given. To these oil may be added, and when thus taken they will promote the rupture of the abscess. However, fomentations with sponges and plasters are to be applied to alleviate the pain. When the ulcers are of a mild nature (which is shown by the abatement of the fever and pain, and from the substances which appear in the urine being white and inodorous), the milder diuretics are to be used for cleansing them, such as the seed of pompion, the decoction of dates, &c., or, when stronger things are required, galbanum, opopanax, turpentine, rosin, and the like may be added to mead or wine. When the ulcers are putrid, Æthiopian cumin with must, rue with honey and wine, and the like may be given internally; while cataplasms of bitter vetches boiled in wine and honey are to be applied externally. It is proper also, he says, to inject some of the medicines for dysentery, to give clysters of strained ptisan; and to place the patient in hot water. If the matter is thick, a decoction of fennel, parsley, or wormwood is to be given. With respect to food, he recommends milk, especially that of mares or asses, along with honey; also cucumbers, lettuces, the flesh of kids, lambs, and goats, almonds, and wine; but vinegar must be avoided. All motion is to be abstained from. When there are symptoms of repletion, emetics are to be given. When the abscess points outwardly, he seems to direct us to open and apply the cautery; but here unfortunately the text is incomplete.

Galen[3] (A.D. 130), who is looked upon by his admirers and followers as the *beau idéal* of an accomplished physician, and who is copious enough on diseases of the kidney, especially upon stone, does not refer to operations on the kidney as a means of treatment. In the "Isagoge," which is generally ascribed to Galen, he explains that calculus is due to viscid humours which have been much heated, and the heat acts upon them as on clay, rendering them hard and insoluble. He describes a case of bleeding from the kidney in a patient who fell, and without injuring his spine sustained a rupture of the kidney. After a preliminary hæmaturia the urine ceased to flow, and when a catheter was passed, while the instrument was blood-stained only a little urine escaped, showing that there was obstruction to the ureter and suppression of the excretion. He believed in internal rather than in external treatment, and in the matter coming away by the natural passages. This opinion was held until the eighteenth century, and it hindered also the further development of surgery.

This (he says) may of course cause ulceration and therefore great care must be taken in the healing. If this does not take place rapidly, it becomes serious. The continuation of ulceration is easily recognised. The patient has pain in the kidney, passes matter as from an ulcer, and at the same time little pieces of skin, and then blood appears in the urine.

Haly Abbas,[4] who wrote during the early part of the tenth century, says that old men are more subject to renal calculus, for in them the watery part of the urine passes down to the bladder, while the more solid material is retained in the kidney, and there forms a concretion, with heat of the part and a viscid humour. Rhases, upon the authority of Antyllus, who wrote after Galen and prior to

[1] De Vesicæ Renumque Affectibus.
[2] Sydenham Society of London, 1844, vol. i., p. 553.
[3] De Affect. Renumque de Loc. Affect.
[4] Theor. ix., 34; Pract. vii., 42.

Oribasius (A.D. 360), states that calculi are due either to drinking turbid water or to imperfect digestion.

Aëtius[3] (sixth century) gives a full exposition of the views of the ancient physicians and furnishes very exact details regarding treatment. He shows that abscess of the kidney is very liable to lead to fistula, and that it is difficult or impossible to heal. He indicates some of the causes of bleeding from the kidneys: "According as it arises in those who have lifted a heavy weight, or have jumped vigorously, or fallen from a height, or undergone some other similar violent shock."

During the dark ages the physicians satisfied themselves by learning what the Greek and Arabian authors taught until through time they came to believe that Hippocrates, Galen, Ptolemy, and Aristotle had finally settled all scientific questions and that to doubt their decisions was heresy. Respecting operations on the kidney Galen's teaching was believed in rather than that of Hippocrates or Ruffus, and consequently the surgical treatment of suppurative disease of the kidney dropped into obscurity. Little advance was made in the pathology of renal disease until the seventeenth century, when the practicability of operating upon the kidney again came to be discussed. The subject was approached, however, at that time more from the philosophical than from the scientific standpoint; later, pathological anatomy furnished new means of research.

(To be continued.)

AD TERRAM.

BY SIR FRANCIS SEYMOUR HADEN, F.R.C.S. ENG.

THE EARTH AND THE SOIL.

I HAD hoped, after the record which you were good enough to enable me to make in THE LANCET of May 27th, 1899, p. 1411, of my views as to the competency of the earth, properly treated, to deal effectively and harmlessly with all forms of organic decay returning in the course of nature to its surface, that I should not again have to trouble you on the subject; nor should I be doing so now if continued investigations had not satisfied me that we hold in our own hands a key to other equally great truths which in our engrossing pursuit of the microbe we have allowed to escape us—a key, also, which, if applied with a firmer faith in the ordinary operations of nature than we seem just now disposed to accord them, I would fain hope may one day win us back to those larger methods of Inductive Research which we associate with the name of Bacon, and to which, indeed, we owe, directly or indirectly, nearly every great discovery that we have made our own since his time.

It is, however, not alone to regret our growing tendency to break away, on grounds which I must think wholly speculative, from the surer methods of the Baconian philosophy, that I am again venturing to address you, but rather to invite the attention of the profession to the experiments we are making and the language we are employing to chronicle their results—experiments which, since we are making them not in the earth, but in the soil which covers the earth, do nothing to prove the latter the hotbed of infection which some would have us believe it to be, but rather suggest one of two things—either that we are failing to recognise the real nature of the medium we are employing in our investigations, or, which is even more likely, that we are taking it for granted that the soil and the earth are one and the same thing, whereas, from the point of view of the present article, not only are they not the same thing, but, in all but the equal and independent share which they have in the conversion of effete organic matter into its elements, two essentially different bodies—different in their origin, different in their nature, and different in the parts which they play in the world's economy.

Nor is there, I would respectfully submit, any room to doubt the prevalence of the additional oversight which we are thus making, since evidence of that tendency confronts us at every turn—in our choice of the soil as a medium in which to make our experiments, a medium in which we may, if so minded, cultivate anything from a microbe to a mushroom; in the adoption of a terminology, fast degenerating into a vernacular, which is intelligible only to those of us who are content to live under the exacting dispensation of the microbe; in our lectures, our correspondence, our reports, and even in our text-books, which, one and all so far as I can see, speak of the earth as a sort of composite body which they describe as "the soil," or it may even be, when put to it for a pseudonym, as the "subsoil." Thus, we are in no way surprised when so accurate an observer as Professor G. V. Poore[1] candidly tells us that when he speaks of "earth" he means "humus" (which *is* soil), or when so practical and conscientious an experimentalist as Dr. Klein[2] uses the term "earth" in the same sense as his equally careful fellow-reporter, Dr. A. C. Houston,[3] uses the word "soil"; or finally, since it is useless to recapitulate examples of the same thing, when my courteous critic and mentor, Sir Charles Cameron of Dublin[4] referring to "gravels and boulder clays" (which are *earths*) calls them "soils," and even goes out of his way to emphasise the kindly lesson he is reading me, by a formal record of his belief that "the cleaner the soil we live on the longer we shall live on it." But the soil which I am speaking of is never clean, never has been clean since the globe became populated, and never will be clean till it reverts to the sterility which there is every reason to believe at one time affected it.

The soil, in fact, according to experiments which have been now uninterruptedly carried on at Woodcote for 14 years, and which, though still incomplete on one or two points, I consider fully warrant the crude results I am now giving of them, *is* "soil" in the most ordinary acceptation of the word—organic refuse, that is, animal as well as vegetable, which having lived its life and served its purpose on the outermost confines of the globe has dropped out of existence and, in obedience to a law which neither it nor any other material body is able to resist, is already when we meet with it on its way towards its centre of gravity. Soil, in fact, according to my understanding of it, is *manure*—the very medium in which with so much confidence we are making our experiments—the one great fertilising agent without which the earth would starve, its populations die out, and the atmosphere itself—deprived as it would then be of its means of renewal and consequently without a purpose—not impossibly also cease to exist.

The earth, on the other hand, properly so-called (from my point of view), is the very opposite of all this. While the soil is organic the earth is inorganic. While the soil has its origin on the periphery of the globe, the earth has its origin in its own centre, and its earliest developments in the breaking up and gradual disintegration (by a variety of forces, the nature of which being well understood I need not here dwell upon) of its own primitive rocks, till at last they are reduced to the friable matter which we know as "earth." Again, as to the comparative age of the two bodies; while that of the soil can in no case exceed the age of the animal which produces it, or in the case of vegetables the duration of the seasonal intervals which mark the rotation of crops, the fall of the leaf, and so forth, the age of the earth is measurable only by the countless ages during which we know it to have been in course of formation. And yet, again, separated as the two bodies originally are by a space as great as that which separates the poles from the equator, and approaching each other—as, in a sense, they may be said to do—from opposite ends of the earth, they have, and can have, nothing in common till by a provision of nature (gravitation) they are brought into actual contact; a contact differing in nothing, so far as I can see, from that of any two bodies which, being chemically incompatible, give rise on their admixture to a change of their elements, and it may even be to the creation of a new force—such a force, for instance, as has its analogue in the production of the electric spark by the contact of the opposite poles of the voltaic pile. For the interposition of the microbe in changes and metamorphoses of this kind I must confess that I can see no necessity whatever, or, in fact, for that of any foreign body, saprophytic, bacterial, or otherwise cryptic and gratuitous.

The physical properties of the soil, again, its weight, its

[3] Tetrabiblos.

[1] First Milroy Lecture, THE LANCET, Feb. 25th, 1899, p. 491.

[2] Report (to the Local Government Board, 1898-99) on the Fate of Pathogenic and other Infective Microbes in the Dead and Buried Body (in "earth") pp. 344—360 et passim—372.

[3] Report (to the Local Government Board, 1898-99) on the Inoculation of the Soil with Particular Microbes, p. 413.

[4] The Soil as a Nursery of Pathogenic Organisms, June 3rd, 1899, p. 1374.

volume, and its extraordinary value as a fertilising agent, will, from what has been said of its nature and origin, be readily understood to be measurable only by the whole extent of the earth's surface (which it more or less entirely covers and overlies) and by the amount of organic life, animal as well as vegetable, which is its immediate source of supply. Then, as to its weight and the pressure which it exercises on the earth's surface (as to which I shall have more to say later) it is, of course, that of the atmosphere *plus* its own density and the weight represented by the pressure which it exercises on the earth's surface as the effect of gravitation. It is, however, its vast extent, its kind, and the irregularity of its distribution which, for the purposes of this communication, chiefly concern us

Experiments made in the laboratory have, meanwhile, told us nothing on these points, and herein must be my apology for the nonconformity of my views with those of the eminent men who—taking the microbe for granted and making it the basis of their inquiries—have been generally received as authorities on that part of the subject; the difference between us, however, depending, I think, mainly on the fact that while their investigations have for the most part been founded on experiments made within doors, and on the strength of pre-arranged lines of inquiry, mine have been made wholly out of doors and on lines suggested simply by what I have met with and seen there during a continuous succession of observations which have engaged much of my attention for 25 years and pretty nearly the whole of it for the last 14 years.

So much for a theory merely in outline and as yet with such proofs only of its stability as may reasonably be read between the lines of the present communication. Nothing will be easier than, at the proper time, to multiply such proofs, at all events to the extent of largely extending and strengthening the ground on which that stability rests. On the other hand, points have yet to be cleared up which, though by no means obscure, require time for their elucidation, and which make me unwilling to go to print with them till I have had that time at my disposal. A single example of such points will suffice to explain this indisposition on my part. Though I have long been aware that nitrification is a more rapid process than I once believed it to be, I had no idea till lately how much more rapid a process it really is; nor, though I have now no doubt of the fact, have I yet been able to arrive at anything like its exact measure.

Again, though I have been making my graves under various conditions as to depth and the contiguity of their contents with the earth enclosing them—beginning with a depth of four feet, as that prescribed by the Local Government Board, and ending by simply laying the body on the ground and covering it over with a single foot of earth—my examinations of the whole of these graves have only been made once a year and the results of such examinations only recorded in print once a year; I now know that if I had examined them every half-year I should have found, I will not say the same astonishing results, but evidence of a far more rapid progress towards a return of the body to its elements than I had then believed possible, as well as arrived at a more exact knowledge of the rate and kind of change undergone by the body in the interval.

The solution of such a moot point is, of course, of the highest practical importance, and I am led by it to the conclusion that, rather than present such a point in an imperfect form, I shall do well to let the present paper go to press as it is and return to it later.

THE NEW OPERATING THEATRE FOR THE ROYAL INFIRMARY, PRESTON.—The new theatre which by the generosity of Dr. R. C. Brown, of Preston, has just been completed and equipped at a total cost of £2654 is in many respects a model building. It is situated in the centre of the infirmary blocks and is built of iron, glass, and tiles. Every precaution has been taken to dispense with corners and angles and the building is so constructed that it can be effectively cleansed with a hose. It is surmounted by a double roof in order that an equable temperature may be obtained at all seasons of the year. The theatre is well lighted by electric light and there is a specially large north window eight feet wide and six feet high. Nothing that could be done has been left undone to make the new operating theatre, of which Preston must be proud, as perfect as possible from every point of view, and the inhabitants of that town owe a deep debt of gratitude to Dr. Brown.

THE ROYAL COMMISSION ON SOUTH AFRICAN HOSPITALS.

(Continued from p. 576.)

II.

PART III of the Commissioners' report is taken up with a detailed investigation of the various complaints made as to the care of the sick and wounded during the campaign and the conclusions arrived at in respect of such complaints. The subject is studied in the following order as regards the care taken and the various complaints which have arisen, Natal and all places not in Cape Colony, the Orange River Colony, or the Transvaal being excluded from consideration here.

(A) At the front, including some places which are conveniently dealt with under this head, such as Kimberley, Modder River, Driefontein or Abram's Kraal, Bloemfontein, Kroonstad, Johannesberg, and Pretoria; (B) in the conveyance of patients to and from fixed hospitals on the lines of communication and at the base; (C) at the hospitals on the lines of communication; and (D) at the hospitals at the base, including the hospital transport ships. .....

A.—AT THE FRONT.

The details of this class group themselves and can be best dealt with under the following heads:—(1) the advance of Lord Methuen to the relief of Kimberley; (2) the advance of Lord Roberts to Kimberley and to Bloemfontein; (3) Bloemfontein during Lord Roberts's stay there before his subsequent advance and afterwards; (4) the advance from Bloemfontein to Kroonstad; (5) Kroonstad; (6) Johannesberg and the advance from Kroonstad; (7) Pretoria; and (8) concluding remarks as to the care of the sick and wounded at the front. Outside these groups there are but few matters relating to the condition of affairs at the front which require attention beyond our general observations in Part II., and so far as these few matters appear to us to need special mention we have dealt with them at the end.

The present article only deals with the first three sections of sub heading A, the hospital question being, as all our readers know, particularly acute at Kimberley.

METHUEN'S ADVANCE TO KIMBERLEY.

With regard to A (1) the Commissioners say that Lord Methuen began his advance to Kimberley on Nov. 22nd, 1899. Between this date and Dec. 11th there were four severe engagements, ending with the disastrous one at Magersfontein, all of which were productive of many wounded. Lord Methuen's force, according to the evidence of Surgeon General Wilson, was accompanied by the full complement of bearer companies and field hospitals, each with a complete equipment, and before the advance Surgeon-General Wilson was told by the chief of the staff that the advance was only for the relief of Kimberley, which being accomplished the force would immediately return to its base. After the battle of Belmont, however, the principal medical officer, recognising the serious state of matters, telegraphed for some of the staff of No. 3 General Hospital and got up tents and equipment. No. 3 Stationary Hospital was sent up to De Aar and after Magersfontein two hospitals of the nature of stationary hospitals were established at Orange river and Modder river. These hospitals, which were more on the scale of field hospitals, were for a short time insufficiently supplied with certain articles such as bed-pans, and there was a shortage of orderlies. The hospital trains, however, soon took the wounded down to Cape Town, so that there was never any considerable degree of pressure. The army remained at Magersfontein for two months—namely, from Dec. 11th, 1899, to Feb. 11th, 1900.

ROBERTS'S ADVANCE TO KIMBERLEY AND BLOEMFONTEIN.

Lord Roberts left Ramdam on Feb. 12th, 1900, and Kimberley was relieved on Feb. 15th. Cronje's flight and eventual surrender at Paardeberg took up the time from Feb. 16th to Feb. 27th. The advance to Bloemfontein commenced on March 6th and after fighting at Poplar Grove and Driefontein Bloemfontein was reached on March 13th. What happened during the advance from a medical point of view was as follows:—

When the advance of Lord Roberts's force for the relief of Kimberley was contemplated it was obvious that success depended on the mobility of the column of relief, and in order to ensure mobility the transport had to be reduced to a minimum. The force was very deficient in mules and forage. The ordinary allowance for moving a division is 1666 mules and 416 oxen, whereas all the transport animals available for this column during its advance at this time were 946 mules and no oxen, and only four days' forage was available for the horses, mules, and oxen for the force. Sufficient forage even for the cavalry and mounted infantry could only be obtained by reducing the daily allowance from 12 lb. to 8 lb., and of course the force had to provide for

carrying food and ammunition for the column as the line of communication was threatened. Food and ammunition were of necessity the first things that had to be considered. A minimum of 12 days' food for the army alone could be collected and carried. Under these circumstances the military authorities had to take steps to cut down the ordinary transport of the column and they found it necessary to do so rigorously, even to the extent of leaving the ordinary baggage of the column behind at Modder river and the men had to advance without any change of clothing. Amongst other transport to be cut down was that of the bearer companies and field hospitals. Accordingly the ambulances for the bearer companies were cut down from 10 to two and the transport wagons for the field hospitals were cut down from four to two, a water-cart being added because of the difficulty of obtaining water during the march. The order under which this was done is dated Jan. 29th, 1900, and is set forth in the Appendix (*vide* Appendix—*Bedford* 4). As the wagons to the field hospitals had to carry all the tents, blankets, waterproofs, buckets, &c., as well as the medical and surgical necessaries, the effect of this order upon the condition of the field hospitals was of course serious, though no doubt the two wagons left with each field hospital were loaded up to their utmost capacity by essentials, and tents and heavy materials of secondary importance were the items which were chiefly left behind, the evidence showing that requisites—such as drugs, dressings, splints, &c.—were taken in very nearly sufficient quantities. We have also already pointed out that the unit allowance of field hospitals had been greatly reduced—namely, from nine or 10 to six per army corps. The three infantry divisions engaged in the operations in the advance on Bloemfontein—namely, the 6th, under General Kelly-Kenny; the 7th, under General Tucker; and the 9th, under General Colville—were each supplied with the brigade field hospital alone, the divisional field hospital in each case not being available. In the operations at present under consideration the sick and wounded were, therefore, through the absence of the divisional field hospitals in three infantry divisions, deprived of the services of 12 medical officers, three quartermasters, and 105 men, and also of the field hospital equipment necessary for the treatment of 300 patients.

Even the *personnel* of the bearer companies and of the field hospitals was not maintained at its full strength during the advance, inasmuch as a few officers and men had to be left at Kimberley and at Jacobsdal.

Surgeon-General Wilson, when the advance to Kimberley was contemplated, was consulted as to the cutting down of the transport. When the matter was broached to him he said that he could not carry out the medical arrangements for the advance with less than the minimum of transport allowed by the army regulations, but afterwards, when the position of affairs was explained to him, he recognised the military necessity and accepted the decision of the Commander-in-Chief, as, indeed, he was bound in duty to do.

It follows that the advance had to be undertaken with the ordinary provisions for the sick and wounded gravely reduced. Nothing but military necessities would have justified the reduction. It is not for us to question the decision of the military authorities, but we may say that we are convinced that the necessities justified the step taken by them and that the suffering thereby occasioned was part of the price that had to be paid for success in the campaign. When the advance to Kimberley was commenced, it was, of course, not known for certain by the military authorities what might follow. It was considered as most probable that after Kimberley was relieved the column would be again in touch with the railway, and that the railway could be used for conveying the sick and wounded to the stationary and base hospitals. But the unexpected movement of General Cronje's army, and its pursuit, changed the nature of the campaign. The British army had to pursue, and then followed the remarkable advance which resulted in the surrender of Cronje's force at Paardeberg, and the advance to and capture of Bloemfontein. That advance had to be made under the conditions as to field hospitals, bearer companies, and transport already indicated. The transport originally allotted to the field hospitals and the allowance of ambulances to the bearer companies could not be increased during the advance, for, owing to a convoy being attacked by the enemy, the advancing army lost three days' supply of food. As it was not known where the army might ultimately have to go, or, if it went to Bloemfontein when that place would be reached, all available transport had to be utilised for the purpose of bringing up food and ammunition to the army. When Paardeberg was reached, communications were opened with Kimberley, and in that way sufficient food was obtained for the army to allow half rations being given to the troops. Up to Paardeberg the only way of dealing with the sick and wounded was by sending them back by ox-wagons which had been emptied of food, to Modder river or Kimberley. These wagons are of necessity rough, and the suffering occasioned by the journey in them over the veldt to many of the patients must have been severe, especially on cold nights, as the men were in their summer clothing with no change, and but few extra blankets could be obtained.

The stationary hospital at Modder river was only intended to act as a base hospital for the advance to Kimberley, but as a matter of fact, owing to the unexpected movement of General Cronje it became one of two base hospitals employed in the first part of the advance on Bloemfontein. Kimberley was used as the second base hospital for this advance. During this time it is admitted that a general hospital at Orange river would have relieved the strain considerably.

Major Bedford, with regard to this advance, says: "The work was done under considerable pressure and we should have been glad to have had more help; but it was not more pressure than one expects on a campaign. We should have been much more comfortable if we could have had a general hospital at Orange river."

The reasons given for failing to plant a general hospital at this point are two: (1) it was not known to the Surgeon-General that the western line—that is, the De Aar to Kimberley line—would be occupied for so long a period, or that it would assume such importance in this part of the campaign; and (2) when the troops left Ramdam the immediate objective was Kimberley and the advance to Bloemfontein which followed was unexpected.

At Paardeberg there were many wounded. For 11 days, from the 17th to the 27th February, the troops occupied a position on both sides of the Modder river in the neighbourhood, and the chief casualties occurred on the 18th February, when an attempt was made to force Cronje's position from all sides. The field hospitals were placed along the bank of the river on sloping ground on which there were some trees which afforded a certain degree of shelter from the sun. There were no houses in the neighbourhood which could be used for the reception of the wounded, and in addition to the tents there was only one stable which was available for this purpose.

Owing to the cutting down of the transport the tents were greatly reduced in number and the wounded were much in excess of the accommodation they afforded. Large numbers had to lie in the open air under the shelter of the trees. This was more particularly the case on Sunday, 18th February, when over 800 patients were brought in as a result of the action on that day. Fortunately the nights were warm, although undoubtedly much discomfort was caused by two or three wet days. Everything possible, however, was done to obviate this difficulty, and Mr. Kendal Franks in his evidence states that the engineers endeavoured to improvise shelters for the wounded men by means of branches covered by rushes.

Very important in connexion with this is the statement of Mr. Watson Cheyne. He says: "I do not think that the fact of the patients being in the open affected them a bit," and again, "I think the hardship at Paardeberg was of very little consequence." Some evidence rather conflicting with this view was given by Major Barrett-Lennard, a volunteer officer attached to the Army Service Corps. But his evidence is opposed to the evidence of several witnesses, and is, on the whole, we think, exaggerated. Still, it cannot be doubted that the treatment of the sick and wounded was carried on at Paardeberg under very great strain. Short in regard to *personnel*, short also in appliances and equipment, the powers of the Royal Army Medical Corps were taxed to the utmost. Mr. Watson Cheyne states he had a difficulty in obtaining water which had been sterilised by boiling for the operations he had to perform owing to a deficiency in kettles, and further, that he was somewhat short of dressings. This difficulty arose from the cutting down of the transport, but it was soon relieved by getting what was necessary from the stores at Modder river. Notwithstanding the pressure at Paardeberg the arrangements which were made for the comfort of the sick and wounded appear to have been satisfactory. The Rev. J. Blackbourne, an army chaplain, speaks in the highest terms of the services rendered by the medical men, and one interesting incident which he narrates (*vide* Minutes of Evidence, question 7279) renders it evident that the same treatment was given to everyone, both officers and men, irrespective of rank. Mr. Handa, the correspondent of the *Daily Mail*, likewise bears testimony to the attention which was paid to the sick and wounded. He says: "At Paardeberg I saw a good deal of the hospital arrangements because the main hospital camp lay between the head quarters, where I had often to go, and my own camp"; and he goes on to state that "the arrangements and everything were excellent ..... the men seemed to be most comfortable in their tents and quite satisfied with the arrangements."

In addition to the large number of wounded who had to be taken care of at Paardeberg, considerable sickness was developed there, partly due to the hardships of the campaign and partly to the bad water which was drunk by the troops. The sick and wounded men could not be kept at Paardeberg, for there were no tents or proper accommodation for them there, and, moreover, they could not have been supplied there, especially as the enemy were threatening the position. They had, therefore, to be sent down to Kimberley or the Modder river. The evacuation of the field hospitals to these places had to be effected rapidly.

To effect this convoys left every day and had to go a distance of about 25 miles to Kimberley or to the Modder river. Kimberley had the advantage of being able to afford house accommodation to the wounded, but this was counterbalanced by the fact that as the line of communication with the Cape was at that time broken by the destruction of the bridge over the Modder river the ambulance train could not reach it and the patients who were sent there had to remain. Ambulances for the transport of the wounded from Paardeberg were not available, the ox-wagons which were employed being those that had brought up food and other stores from the Modder river and which would otherwise have returned empty. It was during the journey of these convoys over the veldt that the hardships borne by our sick and wounded soldiers were chiefly manifest, and Mr. Watson Cheyne stated he thought that some patients had died as the result of the journey. Sad as this is, there can be no doubt that the evacuation of the hospitals was a military necessity. A stationary hospital could not have been established at Paardeberg because, as already pointed out, when the army moved on the hospital would have been left exposed to the enemy, who would in all probability have looted its stores. Every provision that was possible appears to have been made to lighten the sufferings of those carried by these convoys. Except in a few instances the convoys were accompanied by a medical officer and by orderlies. Those going to Modder river stopped at the guards' field hospital at Klip Drift. They were there fed, and their wounds dressed. The convoys passing through Jacobsdal were attended to there, the wounded men had their wounds dressed, and all had medical comforts administered to them, the worst cases being detained at Jacobsdal and attended to at the German Hospital there. Occasionally, owing to the deficiencies of staff, some of these convoys not conveying the more severe cases had to go unaccompanied by a doctor or by trained orderlies. In these cases the necessary food and medical comforts were put in charge of some responsible non-commissioned officer. We should perhaps add that at Paardeberg the difficulties of the medical authorities were increased owing to the British having to take over the care of the Boer sick and wounded, extra labour being thus cast upon the already diminished staff and field hospital equipment. It was probably owing to this that for two or three days there were insufficient dressings for some of the wounded.

KIMBERLEY AND MODDER RIVER.

As will be seen from the above statements, the pressure on the hospitals at Kimberley and Modder river after Paardeberg was very great. In one day there arrived at Kimberley 523 patients, and at Modder river also in one day 779.

DRIEFONTEIN OR ABRAM'S KRAAL.

At Driefontein there were 361 wounded, some of whom had to be left on the field all night, though this must not be taken to mean that they were unattended. Owing to lack of transport it was impossible to take the wounded along with

the army, and a hospital had to be established at Driefontein. The hospital consisted of two houses and some tents. There was no want of necessaries for the patients, and they were transferred to Bloemfontein about March 23rd.

BLOEMFONTEIN.

Bloemfontein was occupied on March 13th, the force bringing with it between 200 and 300 patients. Some 10 days after the sick and wounded arrived from Driefontein, being about 400 in number. Enteric fever broke out with startling suddenness and a very larger number of men were attacked. Three general hospitals, the Irish Hospital, and No. 5 Stationary Hospital had been got ready to be moved up as soon as the advance to Bloemfontein was determined upon. But owing to the cutting of the railway and the lack of transport the three general hospitals did not all arrive until April 29th. The Langman, the Portland, and the Irish Hospitals also arrived in April, from April 2nd to April 12th. No. 5 Stationary Hospital arrived on March 28th. Thus the field hospitals had for some time to be used as if they were and had been properly equipped as fixed hospitals, and the rest of the hospital accommodation consisted of sundry buildings in the town. There was undoubtedly for a time a deficiency in both equipment and staff.

Condition of the Town after the Advance to Kroonstad.

In the beginning of May the army began its advance from Bloemfontein towards Kroonstad. The field hospitals had then to be cleared in order to accompany the troops and their patients had to be discharged, principally into the general hospitals. As the advance continued the sick and wounded of the force were sent back to Bloemfontein, with the result that throughout May there was great overcrowding, especially in General Hospitals Nos. 8 and 9, into which practically all the patients were poured who could not be taken into the buildings or private hospitals. The private hospitals only took a comparatively small increase over the numbers for which they had been originally equipped. The effects of this influx upon Nos. 8 and 9 General Hospitals will appear when we come to deal more particularly with those hospitals, as we do later on. There were also during April, and still more during May, undoubted deficiencies of bedsteads, mattresses, commodes, bed-pans, feeding-cups, and such-like utensils, and there was a lack of hospital clothing for the patients, at any rate in the early part of May. Further, there was an insufficient number of Royal Army Medical Corps surgeons, trained orderlies, and nurses. The principal medical officer, Surgeon-General Wilson, appears to have had available in South Africa some civil surgeons to assist in the treatment of the sick and wounded; but, as already pointed out, it was not practicable to use them except to supplement the surgeons of the Royal Army Medical Corps and in hospitals in which the latter formed a substantially large part of the staff.

In June the condition of things greatly improved. The authorities were in a position to send down patients who were able to bear the journey to the hospitals on the lines of communication and at the base, and by the time this Commission arrived at the town the accommodation for the sick and wounded was more than sufficient and the patients were in every respect being well cared for.

Difficulties of Dealing with the Sick and Wounded.

Before dealing in detail with the condition of the hospital at Bloemfontein at the times when complaints have been made with regard to them, it is right that we should point out the difficulties which were in the way of the authorities in dealing with the sick and wounded in the town owing to military exigencies and the impracticability of getting sufficient hospital equipment and necessaries up from the lines of communication and the base. These difficulties are clearly set forth in the evidence given before us by the principal military authorities, and in particular in that of Lord Roberts.

On his arrival in the town Lord Roberts found himself cut off for a time entirely from his base. He had with him very little supply for his army. He had hoped to get trucks up from Naauwpoort by rail, but up to the 28th March, owing to bridges being broken, no truck could cross the Orange river, so that he was unable to obtain any supply of food for the troops except a little which he commandeered between Bloemfontein and Norval's Pont and carried into Bloemfontein by ox-wagons. The first railway truck did not arrive until the 29th March, and until then nothing could be got by rail. The food for the army at Bloemfontein alone required 40 trucks a day. Between the 19th March and the 7th April Lord Roberts was only able to obtain 286 truck-loads, and between the 8th April and the 17th inclusive only 503 truck-loads, a shortage for the month which prevented even full and sufficient food being obtained for the army. Between the 28th March and the 17th April the army at Bloemfontein had never more than one day's reserve of food accumulated, though a reserve of food was urgently necessary for a speedy advance towards Pretoria.

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The care of the sick and wounded was not disregarded by the military authorities, and (speaking generally) so far as it was possible under the circumstances they transported up to the town what was required for the patients. Throughout the period of difficulty the officers of the Royal Army Medical Corps did their best to urge upon the military the necessities of their patients and the importance of providing for them, and by the 17th April there were brought up by rail into the town 62 truck-loads of hospital and medical stores and comforts and 461 truck-loads of ordnance, mostly for the sick.

We think it right to state here that the condition of things in the town in the early days would have been much worse than it was had not the railway and military authorities done such extraordinarily good work with their single line—work which stands out as especially good when it is considered how hampered they were by broken bridges and culverts, and breaks in the lines of communication made by the enemy. This is made apparent by the following short statement of material, &c., sent up to Springfontein and Bloemfontein by rail between the time of the opening of the railway to Bloemfontein on the 29th March, and Lord Roberts's advance towards Kroonstad about the 3rd May (*vide* Appendix—*Nathan*):—Truck-loads: 3584 supplies, 861 ordnance, 1138 horses, 342 troops, 118 hospital and medical traffic, 487 military wagons, 445 coal for railway, 100 ammunition, 45 railway and telegraph material, 351 baggage, 841 livestock, 87 general, 140 various, and 159 ambulance coaches; or 9298 truck loads and ambulance coaches in all. It was owing to this good work, and only by great effort, that by the 3rd May a reserve of 45 days' food and sufficient equipment were obtained to enable the army to advance.

Notwithstanding the difficulties of transport, doctors and nurses were sent up by the authorities to Bloemfontein, but not, in the early days, as many as were required. Nurses started for the front as soon as the railway officials notified that they could safely cross the Orange river. On the 18th March a telegram was transmitted from Bloemfontein to the principal medical officer at Cape Town for 30 nurses. This was promptly attended to, for 20 left on the 19th, and 12 a few days afterwards. These were sent up even before the railway was opened and only reached Bloemfontein with considerable difficulty. By the end of March 56 nurses altogether were at work in the various buildings, 24 having been obtained locally, and the number was still further increased in April, when the principal medical officer was informed by telegram from Bloemfontein that more nurses must not be sent up for some time as there was then no more accommodation for them available. By the end of April there were 123 nurses altogether at Bloemfontein (*vide* Appendix—*Bedford* 5).

The Condition of the Hospitals at Bloemfontein.

The report goes on to consider in detail the condition of the hospitals during the periods when causes of complaint existed. The field hospitals are dealt with first and especially that of the 12th Brigade. The first half of this hospital arrived well equipped on April 4th with accommodation for 50 patients. On May 4th the other half arrived. On its arrival on April 4th the hospital had 15 double circular tents and five single tents and it took over from the 18th Brigade field hospital with their sick and wounded—

seven single tents and 22 double circular tents, the latter including one bearer company marquee. On the 26th April two more marquees were added. Being a field hospital, in its ordinary tents it had, as usual, no beds, mattresses, or change of clothing, and but few stretchers, and nurses were of course not employed. Although this condition of things was normal, it is difficult to understand, seeing the length of time that this particular field hospital was detained at Bloemfontein, and that it was used to a certain extent as if it were a fixed hospital, why beds and stuffed mattresses could not be procured or extemporised for use in the tents. As already mentioned, this hospital soon became overcrowded, and the doctors attending were too few to properly cope with the number of patients, and were overworked. In the marquees, matters were somewhat better. It was contemplated that no severe cases should be allowed to remain in the bell-tents, but that they should be moved into the hospital buildings in the town, or into the marquees. But owing, as time went on, to the large increase of sick and wounded, in some instances even severe cases had to be and were left in the bell-tents, inasmuch as room could not be obtained for them elsewhere. Some patients passed through the whole course of their illness in these tents, but such cases were neither numerous nor very severe in type. As there has been some dispute with regard to the exact numbers treated in this hospital, we may state that according to Colonel Gubbins's evidence and return (*vide* Appendix—*Gubbins* 2), the maximum number was 455, of which 247 were enteric fever cases. This maximum number was reached on the 18th May. It must, however, be remembered, in considering these figures, that this hospital received all kinds of cases. Soldiers not capable of performing their duties at the front, though not severely ill, were taken in, and a large proportion of the patients in the bell-tents, probably about half, were quite able to look after themselves.

In the distribution of the patients in the tents and marquees, a classification according to the nature of the disease, and as between the wounded and sick, was to a certain extent carried out, but this classification was not perfect. Some bell-tents had six patients in them, and perhaps occasionally more, but not, we think, severe cases. With very few exceptions there would not be more than four enteric fever patients in one bell-tent. For some days the number of trained orderlies was wholly insufficient, and it was probably owing to this that one or perhaps two cases occurred at this hospital of men wandering away during the night. During April, when the largest number of patients treated in the hospital at one time appears to have been about 320, there was a staff of three surgeons and 48 orderlies. Of these orderlies 15 were of the Royal Army Medical Corps, 11 men of bearer companies, 10 of the Cape Bearer Company, and 12 ordinary regimental orderlies. Those of the bearer company, as well as of the Royal Army Medical Corps, were trained men. On the arrival of the second half of the hospital on the 4th May two more doctors were added to the staff. In the bell-tents, owing to the want of change of clothing and the other circumstances to which we have called attention, men brought into the hospital in their khaki had to lie in it without change, and of course could not, and did not, have their bodies properly washed. Mrs. Franklin, an inhabitant of the town, says in her evidence that she offered pyjamas to a field hospital to enable the men to have a change of clothing, but that the offer was refused on the ground that the men in the bell-tents could not, without risk, be stripped of their clothing. But she could not name the particular field hospital to which she referred, and it is therefore not clearly identified with that which we are now dealing with. Dr. Wm. C. Scholtz of the Langman Hospital in his evidence also gives an instance where a proffered gift of pyjamas and other articles was, in the beginning of May, refused by the medical officer of a field hospital (apparently that of the 12th Brigade) on the ground that there was already a sufficiency of the articles in the hospital (*vide* Minutes of Evidence—Questions 5379, 5380). There was a deficiency of bed-pans and night commodes, both in the bell-tents and in the marquees. The effect of this deficiency would undoubtedly be prejudicial to the treatment of severe enteric and dysenteric fever cases and the cause of discomfort to many patients.

There was much conflicting evidence as to the condition of the bell-tents after rain. On the whole, we come to the condition that though

after heavy rain there was some damp in some of the tents, the tents inside could not fairly be called wet, and the men inside could not properly be described as lying in the mud. There were not many days on which it rained in Bloemfontein during the period we are now considering, but when the rain did come the downfall was heavy. However, we do not think the dampness to which we have referred caused any material suffering or annoyance to the patients. A few of them may have been for two or three days in some of the bell-tents without sufficient blankets, but with these exceptions the men had a proper supply of blankets and waterproofs.

This hospital suffered, in common with all others in Bloemfontein, from a deficient supply of fresh milk, but we think the resultant ill effects have been much exaggerated. It is true that a few patients do not like tinned milk, especially if sweetened, but the majority are perfectly satisfied with tinned or preserved milk if it be of good quality, and that supplied to the troops in South Africa generally came within that category. Some of the patients who complained of condensed milk only did so after they were told that it was not fresh milk, not having noticed the difference before. So far as concerns the health of the patients, in a country like South Africa, where fresh milk was so liable to turn sour before it could be got to the patient and to contamination before it reached the hospitals, the patients who had the condensed milk did not suffer in contrast with those who received the fresh. As a matter of fact, the enteric fever patients in No. 9 General Hospital who for some time were fed almost exclusively on the former did as well as those who received the latter. Opinions, however, may differ as to the relative advantages, even in South Africa, of fresh and condensed milk, and no doubt, as a rule, it is advisable that the first-mentioned should be used where it can be obtained of good quality. In the field hospital we are now considering, the bad cases of enteric fever appear, generally speaking, to have obtained a sufficient allowance of it. With regard to medicines, medical and surgical appliances, stimulants, and food, there was, practically speaking, no deficiency.

As appears from the above summary of the condition of things, this hospital was in many respects unsatisfactory, but the results upon the patients were not so bad as might have been anticipated. The deaths up to the 4th May have been ascertained to have amounted to only 4 per cent. of the total number of patients received, and up to that time there were only four deaths in the bell-tents altogether, of which but one resulted from enteric fever, the immediate cause being sudden perforation.

Before passing from this hospital, we should perhaps refer to a suggestion that four men died in consequence of being improperly removed to the Portland Hospital. We have investigated this, and believe it to be unfounded.

Other field hospitals.—**With regard to the other field hospitals their condition was similar to but rather better than that of the 12th Brigade.**

No. 8 General Hospital.—**With regard to this hospital the Commissioners say that in its early days it was in an unsatisfactory condition. Between May 2nd and 3rd nearly 500 patients arrived. The hospital was soon overcrowded and always understaffed, and in the opinion of the Commissioners there was "some want shown of energy and of proper administrative and organising power on the part of the principal officers." Further, friction arose between the civil surgeons and the members of the Royal Army Medical Corps, and even between the senior members of the Royal Army Medical Corps themselves. To the Commission it is a matter for surprise that more vigorous steps were not taken by Surgeon-General Stevenson and by Colonel Exham to put an end to a condition of affairs which could only result in disorganisation. The report proceeds:—**

Referring again to the overcrowding of this hospital, we may point out how great it was, especially in May. Originally the equipment was, as is usual in hospitals of the kind, for 520 beds. It subsequently got some further equipment, but not sufficient for the large number of patients it had to deal with. During the whole of May there was an average of 1200 patients in the hospital, and on one day the number reached was 1398 men and 21 officers. The doctors and orderlies were too few in number to properly cope with such a condition of things, and matters were made worse by their not being properly looked after and supervised. The deficiency of orderlies was increased by sickness amongst them. Doctors and orderlies alike were all overworked and, possibly as a result of this overwork, some of the orderlies appear to have been inattentive, and a few cases of drunkenness occurred amongst them. For some weeks the orderlies were kept working 36 hours out of 48. Again, the supply of nurses for some time was very insufficient. For several days after the hospital started it had only three nurses fit for active duty. Then some more joined, but a few of these were ill, and the numbers were not large; in fact, there were not sufficient nurses until quite the end of May. This scarcity of nurses does not appear to have been the fault of the head medical authorities at Bloemfontein, for Lieutenant-Colonel Beamish, the principal medical officer of this hospital, says in his evidence that he, generally speaking, got all the nurses he asked for (*vide* Minutes of Evidence—Question 8297). A few of the nurses in this hospital were themselves not wholly satisfactory.

There was also a deficiency until the beginning of June of many important things, such as hospital clothing and bed utensils, and there appears to us to have been a want of energy shown in doing anything towards improvising temporary utensils, or taking steps to remedy the defects caused by the absence of proper commodes and bed-pans. The lack of bed utensils, of course, had the usual effect upon the patients' health and comfort, and on account of the deficiency of hospital clothing patients were compelled to lie in their khaki without change, and without being properly and thoroughly washed. We find complaints accordingly with regard to this hospital, which we think in some cases were well-founded, that men were not properly nursed, that typhoid patients, though probably not of a severe type, had in some instances to wash and tend themselves, that night-stools were not properly emptied, and beds not always kept as clean as they might have been. The linen used has been the subject of some complaint, for it appears that in this hospital the washing was not properly done, although at that time the other hospitals in the town succeeded in getting their washing properly attended to. The want of proper management of the hospital was further shown by the delays that occurred in making a thoroughly proper selection of the cases for the purpose of distribution amongst the tents. The charge was also made that for some time the latrines were not properly covered up, and that evil smells resulted therefrom. There was also considerable delay at times in serving the patients with their food. The cook, Corporal H. Sheridan, says that this arose partly on account of the difficulty experienced in getting good water in sufficient quantities, and partly because the hospital was deficient in its supply of cooking utensils and of assistant cooks. In this connexion it should be remembered that the hospital kitchen was of the ordinary camp type and therefore liable to be interfered with by the weather and was originally intended for the supply of only 520 patients. The patients in the marquees did not suffer so much from the state of things above indicated as those in the bell-tents, their main wants being in respect of bed-pans and night commodes. Some complaints were also made as to there being at times a deficiency of blankets in this hospital. Undoubtedly there was a shortage under this head in some of the bell-tents for a few days on the arrival of large convoys; otherwise we do not think the patients suffered from lack of either blankets or waterproofs. As regards the patients in the bell-tents arriving without a proper supply of blankets it is difficult to understand why they were not at once furnished with more blankets. For, though the evidence is somewhat conflicting on the point, we come to the conclusion that there was at all times in this hospital a sufficient store of blankets, and beyond all question there was a sufficient supply in the principal headquarters' stores in Bloemfontein. We think that the fact of there being in the cases we have indicated a deficient supply (though only for a few days) for some of the patients arriving is explained by the want of arrangement in the hospital. Those who noticed the deficiency do not appear to have known to whom to apply to get the blankets that were in store.

As an instance of the lack of organisation we may mention that when deficiencies were noticed some officers seemed not to know to whom to apply. We have also to note that properly qualified officers of this hospital did not attend to meet the large convoys arriving.

Amongst other results we find complaints that some patients, who ought not to have been allowed to do so, had to walk from the place where they arrived in the hospital to the tents into which they were to be received. No doubt Lieutenant-Colonel Beamish, the principal medical officer, owing to the crowded state of his hospital had many things to attend to and great difficulties to meet with, and this probably accounts for the fact that he was so seldom seen in the tents of the hospital or amongst the patients.

On the other hand, we have to state, as complaint was made about it, that in our opinion the site of the hospital was a good one, and further, in favour of this hospital, we must add that considering the circumstances the mortality in it was comparatively small, as will to a certain extent be apparent from the following short list collected from Lieutenant-Colonel Beamish's return (*vide* Appendix—*Beamish*):—

Dates.	Average daily number of patients.	Total number of deaths during the period covered.
23rd April to 30th April, inclusive...	188	5
May	1198	121
June	866	66
July	641	18
August	526	6

From April to the end of August 234 wounded soldiers were treated in this hospital without the loss of a single case.

No. 9 General Hospital.—**The condition of things in this hospital was similar to that existing in No. 8 General Hospital, although with the exception of its first principal medical officer it had upon the whole an excellent staff, the members of which worked well together throughout. Owing to its being near the railway station it was often greatly overcrowded, as it had to be used as a receiving station for cases brought down from the front. Many of the orderlies were untrained and several were rough and inattentive at night. The milk-supply was deficient as in No. 8 and at times there was a scarcity of rugs and blankets. The average daily number of patients was: in May, 1276; in June, 860; in July, 502; and for the first six days of August, 399. The total number of deaths was, from April 19th to the end of September, 279, which the Commissioners consider very small under the circumstances. Concerning the milk the report says:—**

With regard to one statement in particular concerning the milk an erroneous impression about it might be gathered from some of the evidence unless the true facts be stated. One witness spoke about the condensed milk being mixed in baths, as if no care was taken and as if the product was likely to be contaminated or affected. As a matter of fact we have seen these so-called baths. They are tin utensils called ablution tins and quite suitable for the purpose of mixing condensed milk with water and have been kept solely for that purpose, and the milk has been properly and efficiently mixed in them, the water used being good.

Private hospitals.—These were well managed and the Commissioners say but little about them. The Portland Hospital was not flooded nor was the Langman Hospital overcrowded.

Hospitals in the buildings.—With regard to these the Commissioners found but little to complain of. There was at first a deficiency of mattresses and the complaints made as to the Randzaal Hospital that there was no proper separation of the wounded and those suffering from enteric fever and that convalescents were sent away under circumstances in which they should not have been allowed to depart are considered to have been not established.

CAUSES OF THE DEFECTS IN HOSPITAL ADMINISTRATION ON THE ADVANCE.

Generally speaking, the causes of the defects were mainly two: difficulties of transport and the extent, suddenness, and virulence of the enteric fever epidemic which, however, could not have been foreseen. It was mainly due to the conditions existing at and after Paardeberg. As to delays in bringing up hospitals the report points out that they were got up as soon as they could be. The *personnel* of No. 9 General Hospital was sent up before the equipment and was not idle before the hospital opened as Mr. Burdett-Coutts thought.

Delay in bringing up staff.—On this point the Commissioners say:—

In the beginning of April Surgeon-General Wilson, seeing the condition of things in South Africa, telegraphed to England for four more general hospitals and for more civil surgeons, and on arriving at Bloemfontein on the 23rd April, seeing the position of affairs there then, he sought for and obtained more doctors and nurses in South Africa itself. But these steps came rather late. We think the deficiencies of the staff at Bloemfontein were not thoroughly realised as soon as they might have been and that more doctors might have been obtained and sent up so as to supply these deficiencies earlier. We cannot think that the difficulties of transport, which we are fully aware of, could have prevented doctors being obtained and sent into the town. The lack of sufficient nurses gives rise to similar comments. And with regard to the point that at one time there was no sufficient accommodation for more nurses, it appears to us that though under the circumstances it was right on the part of the authorities not to convert the hotels into hospitals, yet one or more of the hotels might have been employed to afford accommodation for nurses.

As to the deficiency of orderlies, all we can say is that what were really required were properly trained orderlies. These were not forthcoming, and we think the medical authorities did their best in employing as they did such partly trained or untrained men as they could obtain.

Delay in supplying deficient articles.—The Commissioners think that commandeering was not enough resorted to. The deficiency in bed-pans should have been more quickly met by supplies from the base than was the case. Heavy articles were difficult to obtain from the base, but, says the report:

Some witnesses were apparently under the impression that there was no difficulty in sending even heavy articles up by the railway to Bloemfontein. Mr. Burdett-Coutts, M.P., in his evidence illustrates the point by reference to the fact that his own horses were sent up; but at that time horses were being sent up because remounts were urgently needed at the front, and his horses were forwarded because they were consigned as remounts to an officer at the front (*vide* Appendix—*Price* 2)

In conclusion, though we have pointed out in what respects in our opinion there has been some delay or mistake in not providing further supplies of requisites for the hospitals in the town, we think it right, in considering and estimating the difficulties in the way of the principal medical officer in the town, to call attention to the fact that, in addition to the multitudinous affairs with which he had to deal, the medical officers under him did not always bring to his notice the true condition of things in their hospitals.

Delay in removing patients from the railway station.—As to this complaint, which the Commissioners say is in some degree justified, the report proceeds:—

From and after its first occupation the town was used as a base to which were consigned the sick and wounded from the front, especially after Lord Roberts's advance to Kroonstad commenced. These patients were generally brought into the town by railway and on reaching the railway station, unless they were consigned to No. 9 General Hospital after its siding was made, they had to be taken from the station by ambulances to the various hospitals into which they were to be received. For some time the number of ambulances available for the purpose was very small and it was a matter of difficulty always to have a supply at the station immediately on the arrival of the train. The duty of the medical officers at the stations on the line from which the sick and wounded were sent was to notify by telegraph to the principal medical officer at Bloemfontein the dispatch of the train and the probable hour of its arrival. But owing to the condition of the line, and the interruptions due to the pressure of the traffic and the acts of the enemy, the trains very often arrived at the station hours after the time fixed or at which they were expected. The ambulances being few and much in request could not be kept permanently at the station and so on several occasions some two to four hours elapsed between the arrival of the trains and the removal of the patients to the various hospitals. Moreover, the telegraph line was often cut or out of working order and even when in proper condition was often blocked by urgent military messages, and it is said that sometimes the medical officers sending patients by train forgot to telegraph in time to the principal medical officer at Bloemfontein. In those cases (which, however, we think were few) the sick and wounded would arrive without the authorities at Bloemfontein being made aware of the fact and still greater delay might arise before they could be removed to the hospital. In these various ways the patients were sometimes delayed at the station and in some few cases had to remain for some time without being attended to by a doctor or obtaining any refreshment or medical comforts, such as milk, beef tea, or stimulants. Indeed, on occasions, owing to the train having occupied a longer time on its journey than had been anticipated, and for which it had been supplied, the men may have been without refreshment for some time, and suffering must necessarily have been thereby caused, especially to such of the patients as could not look after themselves. These occurrences were prevented after a time by the establishment by Colonel Exham of a telephone from the railway-station to the principal medical officer's quarters in the town, and also by a medical officer being always kept at the station with medical comforts ready. Moreover, as time went on more ambulances became available for the removal of the patients. But the attendance of a medical officer at the station was not arranged for until the end of May. It is said that before that time the staff of doctors in Bloemfontein was so small in comparison with the work to be done that a medical officer could not be spared for the purpose. We think, however, there is good cause for complaint in the fact that steps were not taken earlier to remedy the evils we have referred to, although after Colonel Exham's arrival at Bloemfontein we are satisfied he was constantly at the railway-station, and that he discharged his duties very zealously.

One incident of the kind has been the subject of much evidence, and was particularly referred to by Mr. Murray Guthrie, M.P., and Mr. Burdett-Coutts, M.P., the latter of whom, however, only spoke from information given to him by others. As it has been considerably commented upon, we inquired into the details. The facts, which apparently were not fully known to Mr. Murray Guthrie, are not so bad in several particulars as they were in the first instance represented. We think it right to state them fully. The train, which contained 179 patients in all, consisted of several trucks, which were at the time the only means of transit available. It left Zand river on the 22nd May, at noon, and arrived at Bloemfontein at 6 A.M. on the 23rd. One of the trucks contained eight patients suffering from fever, which subsequently proved to be enteric. This truck was next to the engine, and immediately behind it came some empties, and then followed the trucks containing all the other sick and wounded men. As the train was expected to obtain refreshment at Smaldeel, only a little was served out at Zand river, that duty being committed to a soldier who was sufficiently well to be able to undertake it. At Smaldeel, owing to the hour of arrival and the disorganisation incidental to the then condition of the campaign in that neighbourhood, the men appear to have received no further comforts, but a little later, before reaching Bloemfontein, two nursing sisters came on board the train and gave the men some milk, brandy, and extract of beef. Arrangements had been made at Bloemfontein for the reception of this train, which was to be drawn up on the line opposite No. 9 General Hospital, in order that the patients might be easily conveyed there. But when it reached Bloemfontein, by a mistake of the railway shunters, who did not notice that the truck with the eight men in it was between the empties and the engine, and who thought that all the patients were contained in the trucks at the other end, two empties with the trucks in question attached were shunted on a siding, as forming no part of the train from which the patients were to be removed. The consequence was that when, in due course, the 171 patients were taken opposite No. 9 General Hospital and detrained, the truck with the eight men in it remained for some time unnoticed on the siding. The authorities at No. 9 were of course unaware of the fact. The railway staff officer noticed the men, but was under the impression that the authorities of No. 9 General Hospital knew that they were there and would send for them shortly. Consequently, he did not inform Colonel Exham of the circumstance as quickly as he should have done. Finding, however, that they were not sent for, he at last communicated with Colonel Exham, who thereupon at once went to the station and saw the men. This was about 11.30 A.M. In the meantime, about 9 or 9.30 A.M., Mr. Murray Guthrie had noticed the men and spoken about them to the railway staff officer. Assistance was obtained by them and the eight men were removed from the wagon and put on the platform under shelter, with their blankets and great coats. A little later Mr. Murray Guthrie kindly obtained some bovril and milk from his store, and had it given to the men. On his arrival at 11.30 Colonel Exham was informed of the patients having been attended to in the manner stated, but after visiting them again half an hour later, he at once went to No. 9 General Hospital and arranged to have warm milk and beef-tea provided, which was promptly done. As all the ambulances at his disposal were that morning engaged he obtained a spare ambulance from the Irish Hospital and sent it to the station. The eight patients were then removed to the Irish Hospital, the last one arriving about 2 P.M. or a little later. They were neither in a state of collapse nor dying, as one of the witnesses seemed to fear. When Colonel Exham saw them at 11.30 he found them mostly asleep, and he says that none were in such a condition as to make an early removal an urgency. This is not in accordance with the testimony of some other witnesses, but it seems to be corroborated by the facts which have been ascertained. The men have been traced, and it appears that none of them died at the Irish Hospital, although the contrary has been alleged. Four were transferred from the Irish Hospital to the base and the remaining four were transferred to No. 9 General Hospital. Only one out of the eight died. He became convalescent from the attack of typhoid fever, but about the first week in July, during the wet weather, contracted pneumonia, from which he died on July 13th. The facts of the case speak for themselves.

Care of Convalescents and Others sent from Bloemfontein.

As regards sending down patients to the base the Commissioners consider that the authorities did their best under existing conditions. It was very desirable that the pressure should be relieved by sending down such as were able to bear the journey, and on the whole the selection of cases was wisely made, though here and there mistakes were made.

One deficiency should be noticed. For a time some trains had a deficiency of buckets sent with them by the authorities at Bloemfontein. This deficiency caused much discomfort, and the oversight is to be regretted as it was easily remediable, and as a matter of fact was set right on attention being called to the matter by Dr. Conan Doyle.

Sanitation in the Town.

This was not wholly satisfactory, but the great outbreak of typhoid fever was not due to preventable causes.

Some Special Complaints.

There were some special allegations made by certain witnesses which we ought to refer to before we leave the subject of Bloemfontein. It is said that on one occasion 20 typhoid patients were improperly removed to the Portland Hospital. We have inquired into this allegation and as a result we have to state that in our own opinion the removal was necessary in the interests of the patients.

A gruesome story of a corpse being stuffed into a lavatory was mentioned by Mr. Burdett-Coutts, M.P., but he states that he only spoke of the matter from information given to him. Inquiry has been made in all quarters to find out whether there is any foundation for this allegation. No such case can be found to have occurred either at Bloemfontein or elsewhere in South Africa, and we are satisfied that Mr. Burdett-Coutts was misled by his informant.

Some observations have also been made with reference to the dead at Bloemfontein, as if the corpses, owing to their great number, were dealt with in a hurried or neglectful way. This is not the fact. In the first place the numbers of men dying in Bloemfontein have been overstated by some witnesses. There were not 50 deaths a day; the maximum was 40, and that only for one day. Each body was buried separately and with every respect and care, and each grave was numbered and the number and name of the dead man registered.

As to Certain General Charges.

As regards certain general charges, we think it only right to say that a false impression is conveyed of the state of things existing at Bloemfontein by such statements as those to the effect that in particular hospitals there were thousands of men in deadly disease, or that thousands of men were left unnursed, or that men were dying against convalescents in the tents (though no doubt in a few cases men may have died next convalescents), or other like general statements. The substantial grounds of complaint at Bloemfontein we have sufficiently pointed out above, and there is nothing in them to justify any charge of inhumanity or of gross or wilful neglect, or of disregard for the sufferings of the sick and wounded on the part of the medical authorities or others having the duty of looking after them.

Lastly, we should add that some few particular complaints and statements affecting Bloemfontein have been made which have not been particularly dealt with by us. With regard to these, we need only say that our silence is to be taken as indicating that, in our opinion, those complaints and statements are not well founded.

(To be continued.)

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 33 of the largest English towns 6718 births and 4804 deaths were registered during the week ending Feb. 23rd. The annual rate of mortality in these towns, which had been 19·7 and 19·5 per 1000 in the two preceding weeks, rose again last week to 21·2. In London the death-rate was 20·8 per 1000, while it averaged 21·6 in the 32 provincial towns. The lowest death-rates in these towns were 11·7 in Burnley, 13·3 in Huddersfield, 13·6 in West Ham, and 14·7 in Croydon; the highest rates were 25·4 in Salford, 25·5 in Birmingham, 26·2 in Manchester, 27·3 in Liverpool, and 36·7 in Plymouth. The 4804 deaths in these towns included 387 which were referred to the principal zymotic diseases, against 397 and 348 in the two preceding weeks; of these 126 resulted from whooping-cough, 94 from measles, 17 from diphtheria, 33 from diarrhœal diseases, 31 from "fever" (principally enteric), and 26 from scarlet fever. No death from any of these diseases occurred in Wolverhampton, in Norwich, in Halifax, or in Gateshead; in the other towns they caused the lowest death-rates in Croydon, Oldham, and Huddersfield, and the highest rates in Bristol, Liverpool, Blackburn, and Preston. The greatest proportional mortality from measles occurred in Liverpool, Bolton, and Hull; from whooping-cough in Bristol, Cardiff, Nottingham, and Preston; and from "fever" in Derby. The 77 deaths from diphtheria included 27 in London, nine in Leeds, six in Leicester, four in West Ham, and four in Salford. No fatal case of small-pox was registered last week in any of the 33 towns, and only one small-pox patient remained under treatment in the Metropolitan Asylums hospitals on Saturday last, Feb. 23rd. The number of scarlet fever patients in these hospitals and in the London Fever Hospital at the end of the week was 1834, against numbers decreasing from 2535 to 1876 on the eight preceding Saturdays; 162 new cases were admitted during the week, against 178, 145, and 142 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 323, 397, and 420 in the three preceding weeks, had further risen to 493 last week, but were 60 below the corrected average. Influenza was certified as the primary cause of 32 deaths in London last week, as compared with 15, 12, and 16 in the three preceding weeks. The causes of 59, or 1·2 per cent., of the deaths in the 33 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Portsmouth, Salford, Oldham, Bradford, and in nine other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Blackburn, Sheffield, and Newcastle.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in the eight Scotch towns, which had been 23·2 and 22·6 per 1000 in the two preceding weeks, rose again to 23·7 during the week ending Feb. 23rd, and exceeded by 2·5 per 1000 the mean rate during the same period in the 33 large English towns. The rates in the eight Scotch towns ranged from 15·0 in Leith and 18·5 in Perth to 23·0 in Edinburgh and 27·0 in Glasgow. The 742 deaths in these towns included 36 which were referred to whooping-cough, 19 to measles, 16 to diarrhœa, 15 to small-pox, six to "fever," four to diphtheria, and three to scarlet fever. In all, 99 deaths resulted from these principal zymotic diseases, against 103 and 106 in the two preceding weeks. These 99 deaths were equal to an annual rate of 3·2 per 1000, which was 1·5 above the mean rate last week from the same diseases in the 33 large English towns. The fatal cases of whooping-cough, which had been 43, 37, and 33 in the three preceding weeks, rose again last week to 36, of which 25 occurred in Glasgow, five in Dundee, and three in Edinburgh. The deaths from measles, which had been 14 and 25 in the two preceding weeks, declined again to 19 last week, and included 10 in Edinburgh, four in Glasgow, two in Dundee, and two in Aberdeen. The fatal cases of diarrhœa, which had been 27, 18, and eight in the three preceding weeks, rose again last week to 16, of which five were registered in Glasgow, two in Edinburgh, two in Dundee, two in Aberdeen, and two in Greenock. The deaths referred to small-pox, which had been 24, 11, and 20 in the three preceding weeks, declined again to 15 last week, and included 13 in Glasgow, one in Aberdeen, and one in Paisley. The fatal cases of "fever," which had been 10 and four in the two preceding weeks, rose again last week to six, of which two were recorded in Glasgow, two in Edinburgh, and two in Dundee. The four deaths from diphtheria showed a marked decline from the numbers in recent weeks, and included two in Glasgow, where two of the three deaths from scarlet fever were also registered. The deaths referred to diseases of the respiratory organs in these towns, which had been 158 and 153 in the two preceding weeks, rose again last week to 177, but were 185 below the number in the corresponding period of last year. The causes of 38, or more than 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 27·4, 34·0, and 34·3 per 1000 in the three preceding weeks, declined again to 33·7 during the week ending Feb. 23rd. During the past four weeks the death-rate in the city has averaged 32·4 per 1000, the rates during the same period being 18·7 in London and 21·1 in Edinburgh. The 224 deaths belonging to Dublin registered during the week under notice showed a decline of four from the number in the preceding week and included 11 which were referred to the principal zymotic diseases, against 18, 16, and 10 in the three preceding weeks; of these, four resulted from "fever," four from diarrhœa, and three from whooping-cough. These 11 deaths were equal to an annual rate of 1·6 per 1000, the zymotic death-rate during the same period being 1·5 in London and 3·2 in Edinburgh. The deaths referred to different forms of "fever," which had been three, five, and two in the three preceding weeks, rose again to four last week. The fatal cases of diarrhœa, which had been two in each of the three preceding weeks, increased last week to four. The deaths from whooping-cough, which had been 12, nine, and three in the three preceding weeks, were again three

during the week under notice. The 224 deaths in Dublin last week included 35 of children under one year of age, and 79 of persons aged upwards of 60 years; the deaths both of infants and of elderly persons showed a slight increase over the number in the preceding week. Three inquest cases and six deaths from violence were registered; and 73, or nearly a third, of the deaths occurred in public institutions. The causes of 19, or more than 8 per cent., of the deaths in the city last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE under-mentioned surgeons have been promoted to the rank of Staff Surgeon in His Majesty's Fleet:—Lawrence Bidwell, Edward Henry McSherry, Walter James Bearblock, William Hackett, Charles Geskie Matthew, Thomas Austen, and Joseph Chambers.

The following appointments are notified:—Staff Surgeon W. J. Bearblock to the *Archer*. Surgeons: O. Rees to the *Gibraltar*, R. F. Clark to Plymouth Hospital, and B. Ley to Royal Marine Depôt, Deal. Civil Practitioner: A. J. Sharpe to be Surgeon and Agent at Whitby.

ROYAL ARMY MEDICAL CORPS.

Major S. O. Stuart holds himself in readiness to embark for South Africa at an early date.

The undermentioned surgeons-on-probation to be Lieutenants: Albert John Walton Wells, George Faber Sheehan, Henry Harold Scott, Henry Arthur Bransbury, Mervyn Winfred Falkner, Richard Nason Woodley, Eugene Ryan, Edward Ernest Parkes, James Valentine Roche, Alfred John Hull, Reginald Vionnée Cowey, James Conway, John Humphrey Barbour, Frederick England Robinson, Samuel Mason, John Southey Bostock, and Arthur Henry McNeil Mitchell.

INDIA AND THE INDIAN MEDICAL SERVICES.

The King has approved of the appointment of the undermentioned surgeons-on-probation to the Indian Medical Service:—To be Lieutenants: Charles William Melville, Robert McCarrison, James Masson, Norman Septimus Wells, William Maurice Anderson, Edmund Hamilton Blake Stanley, William Hugh Leonard, William Douglas Pringle, Andrew Watson Cook Young, James Graham Goodenough Swan, Robert McLauchlan Dalziel, James Jackson Robb, Abdur Shaik Ruzzak, and Robert Basil Boothby Foster.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant Thomas F. Devane, 1st Volunteer Battalion the Queen's (Royal West Surrey Regiment), to be Surgeon-Lieutenant.

VOLUNTEER CORPS.

Artillery: 1st Banff: Supernumerary Surgeon-Captain F. W. Grant to be Surgeon-Captain on the Establishment. *Rifle:* The Queen's Rifle Volunteer Brigade the Royal Scots (Lothian Regiment): The undermentioned gentlemen to be Surgeon-Lieutenants:—Alexander Aitken Ross and James Scott. 1st Hertfordshire Volunteer Battalion the Bedfordshire Regiment; Surgeon-Captain R. Odell resigns his commission. 2nd Volunteer Battalion the Cameronians (Scottish Rifles): Surgeon-Lieutenant-Colonel B. Goff resigns his commission, with permission to retain his rank and to wear the uniform of the battalion on retirement.

THE COST OF MAINTENANCE AND TREATMENT IN MILITARY HOSPITALS IN THE LEVANT.

Dr. Barthélemy of the French navy, in the course of an interesting article in the *Archives de Médecine Navale* for November last on the sanitary condition of a battalion of marine infantry recently quartered in Crete, gives an account of a notable experiment which was carried out under his orders with a view of determining the cost of maintenance and treatment in improvised hospitals for troops at outposts or in camps remote from headquarters. Owing to the isolation of Halepa, where the battalion was encamped, it was decided that all hospital supplies were to be procured locally under the supervision of the regimental medical officer, and in order that the expenditure might be conclusively established Dr. Barthélemy took steps to find out the value of the medicaments and other necessaries which were obtained from France. The rent of the building where the improvised infirmary was installed, amounting to 140 francs per mensem, was also included in the accounts, as well as every other item that could legitimately be imputed against the upkeep of the establishment. Throughout the whole of 1898, says Dr. Barthélemy, we devoted ourselves to this work after a very conscientious fashion, with the following result. After all expenses were paid it was found that each patient cost the State the sum of 2½ francs per diem. It is a very low charge, he continues, by comparison with the sums exacted from military and naval patients in the civilian hospitals of these regions. At Smyrna, for example, every individual admitted is made to pay 12 francs per diem. The simple facts here related demonstrate with great clearness the expediency of organising self-contained infirmaries for troops, wherever they may be stationed, whether it be in the colonies or in foreign countries. These sanitary institutions can be installed everywhere under regimental auspices alone. The administration they demand is extremely simple, while the *personnel* required is less numerous and also less expensive than is the case in hospitals properly so-called. The surgeon-major of the regiment or of the battalion can himself supervise and control the arrangements. He can send his sick in at the most opportune moment, can follow their fortunes during the course of their diseases, and is able to apply the treatment most suitable to each man's case and constitution, for he knows them all well. When these infirmaries are well installed, which can always be the case, the patients are just as well off with regard to hygiene and comfort as they would be in a civil or colonial hospital, and this notwithstanding the important circumstance that the cost of their upkeep in the latter would be at least three times as great.

MILITARY EFFICIENCY IN WAR.

The debate in the House of Commons on Mr. Lambert's proposed amendment to the address *à propos* of the number of surrenders of British troops and the loss of guns during the present war had the effect of drawing an explicit declaration from Mr. Brodrick on the part of the Government. Mr. Brodrick promised that the whole subject would be promptly and firmly dealt with, in order to ascertain all the information possible in regard to the many "regrettable occurrences" that had taken place during the campaign in South Africa. It seems that in future the practice in the army will be more assimilated, and rightly so, to that of the navy in the case of loss of or accident to one of His Majesty's ships. In addition to the dispensation of punishments that has already taken place in connexion with the present war the Government will bring to trial by court-martial all those who were *primâ facie* responsible for surrenders. Where, for want of a *primâ facie* case, it is impossible to deal with specific individuals, the cases will be made the subject of general investigation at the end of the war. It is quite possible that in some instances where troops had had little or no previous military training it was no lack of courage but an absence of corporate discipline and experience on their part that led to their surrender.

HONORARY PHYSICIANS AND SURGEONS TO THE KING.

The following appointments have been made:—Honorary Physicians to the King: Dugald McEwan, M.D. Glasg., Inspector-General (retired); Sir James J. L. Donnet, K.C.B., M.D. St. And., Inspector-General of Hospitals and Fleets; Sir John Watt Reid, K.C.B., M.D. Aberd., LL.D., Director-General of the Medical Department of the Navy (retired); Adam B. Messer, M.D. Edin., Inspector-General of Hospitals and Fleets (retired); and Henry C. Woods, M.V.O., M.D. St. And., Inspector-General of Hospitals and Fleets (extra). Honorary Surgeons to the King: Sir James Jenkins, K.C.B., M.D. Glasg., Inspector-General of Hospitals and Fleets; Timotheus J. Haran, Inspector-General of Hospitals and Fleets; Sir James N. Dick, K.C.B., Director-General of the Medical Department of the Navy (retired); William H. Lloyd, M.D. St. And., Inspector-General of Hospitals and Fleets; Alfred G. Delmege, M.V.O., M.D. R.U.I., Deputy Inspector-General of Hospitals and Fleets (extra).

THE WAR IN SOUTH AFRICA.

There has been great activity recently in the prosecution of the war, and the news is of a much more satisfactory and

encouraging nature. According to an official return recently issued the total effective strength of the British forces serving in South Africa at the present time amounts to 204,949 men. Upwards of 20 cases of plague have occurred at Cape Town since the outbreak of that disease was first notified. The cases have been mainly among the native population, but several Europeans have also been attacked. The disease does not appear to have spread rapidly or to have been of a very virulent type, for the mortality has not so far been great; the worst feature perhaps about it is that the cases have not been confined to one or two, but have occurred in several, districts of the town. Very active measures have been adopted by the local authorities with the view of limiting the spread of the infection. As regards the British forces in the field enteric fever continues to occupy by far the first place in the casualty returns.

SOUTH AFRICAN NOTES.

Lieutenant W. M. Power, R.A.M.C., Lieutenant E. B. Knox, R.A.M.C., Captain N. Faichnie, R.A.M.C., and Civil Surgeons A. Young and S. H. White have returned to England from South Africa.

Captain F. S. Brereton, R.A.M.C. (invalided), and Civil Surgeon M. W. Renton are returning home in the *Simla*.

Lieutenant Forbes Winslow, R.A.M.C., and Civil Surgeon Mowatt are reported improving (Pretoria, Feb. 20th).

Major J. S. Edye, R.A.M.C., Lieutenant J. M. Bulst, R.A.M.C., and Civil Surgeons W. J. Moir and E. L. Mansel Renton have been discharged from hospital to duty.

The military hospital at Stoke has proved of great value during the South African War. Military invalids from the seat of war were first received there on May 8th last. Some 2200 have been received for treatment. On Feb. 18th 76 invalids remained in the hospital, but a fresh party of 150 arrived on Feb. 23rd.

THE NEW PERMANENT UNDER-SECRETARY AT THE WAR OFFICE.

Mr. Brodrick is to be highly congratulated on the appointment of Colonel E. W. D. Ward as the successor to Sir Ralph H. Knox. Colonel Ward is a thoroughly capable man and has had ample opportunities for showing his quality in peace and war, and the appointment of "the best commissariat officer since Moses," as Sir George White was justified in speaking of him after the siege of Ladysmith, will commend itself to all. Colonel Ward is a capital organiser and, like men who really know their work, he has foresight, self-reliance, and no fussiness. His appointment is an earnest of the sincerity of the War Minister's expressed intentions as to army reform.

LUMSDEN'S HORSE IN CALCUTTA.

On the return of Lumsden's Horse to India from their war service in South Africa they met with an enthusiastic reception. The Viceroy, in the course of a speech at Calcutta welcoming the corps, congratulated Colonel Lumsden and his officers and men on their record in South Africa. Lord Curzon dwelt on the fact that besides the loss of their gallant second in command, Major Showers, only five others were killed, while two only died from disease in the entire campaign. The total casualties were less than 24, which in a force of over 250 men was, Lord Curzon considered, a remarkable result.

DENTAL SURGEONS FOR THE SERVICES.

In a paper read by Mr. Browne-Mason of Exeter at a recent meeting of the Western Branch of the British Dental Association, the author urged the appointment of dental surgeons in connexion with the army and navy. In June, 1900, Mr. Browne-Mason examined 151 soldiers invalided from South Africa at the Station Hospital, Devonport, and found that only four had sound sets of teeth. The author holds that early attention to the teeth would be of great benefit to the army and navy, more especially the latter on account of the earlier age of joining the service.

SOME STATISTICS OF WAR CASUALTIES.

Apropos of the losses in the present war in South Africa it may be interesting to refer to the casualties in some other wars. Dr. Ryerson of the Canadian Medical Staff, in his address at a meeting of the Toronto Clinical Society last year, stated that of the British Army in the Crimea 4602 were killed, while 17,580 died from disease; in the American Civil War, on the Union side, 93,969 were killed and 186,216 died from disease; in the Spanish-American war 454 were killed and 5277 died from disease.

THE OGADEN SOMALIS EXPEDITION.

A telegram from Mombasa, dated Feb. 26th, states that the expedition which was sent to punish the murderers of Mr. Jenner was attacked on Feb. 19th. Among the killed was Lieutenant-Colonel Maitland, I.M.S. (Bombay), and among the wounded Dr. Mann.

MENTIONED IN DESPATCHES.

In a despatch from Sir Redvers Buller, dated Camp Springfield, Feb. 8th, 1900 (omitted from the despatches published in the *London Gazette* of Feb. 8th, 1901), Lieutenant J. J. W. Prescott, R.A.M.C., is "specially mentioned for his care of the wounded in despite of a heavy fire."

ARMY MEDICAL SCHOOL, NETLEY.

The summer session of the Army Medical School commences to-day, Friday, March 1st. The session is to be attended by 35 surgeons-on-probation who have entered the school by competitive examination—28 for the Indian Medical Service and seven for the Royal Army Medical Corps.

Correspondence.

"Audi alteram partem."

"THE DUMMY CORPSE" CASE.

To the Editors of THE LANCET.

SIRS,—As it may be of some interest to the profession I have pleasure in placing before you the story of this extraordinary case.

William Charles Browning, 35 years of age, called upon me on Jan. 14th of this year complaining of difficulty in micturition. I prescribed for him but did not see him again until the 25th, when he once more visited me. On the 29th I was summoned to his room at 253, Vauxhall Bridge-road, S.W., where I found him in bed in a very weak condition with a temperature of 103° F. He complained of severe pains in the loins and constant headache and said that his feet and legs swelled when he was out of bed and that for some time he had been passing very frequent but very small quantities of urine which had been porter-coloured but was then clear, although the smallness of quantity and frequency of micturition still continued. He remained in bed for the following eight days, during which I visited him regularly, receiving samples of his urine each day. It was acid, specific gravity 1025, and always contained considerable quantities of albumin. On one occasion I obtained the reaction for blood, and on microscopic examination there were numerous hyaline and some granular tube casts. Uric acid crystals were present in very large amount. I treated the case in the usual way as one of acute nephritis. On Feb. 4th the albumin had largely increased in quantity, and I went to see Browning earlier than usual and found him very collapsed, deadly pale, almost pulseless, and suffering from a severe rigor. He explained to me that a fire had occurred in the adjoining room during the previous night, that he had jumped out of bed, and almost naked had assisted in extinguishing it. He then said that he should send for his brother, and gave his landlady the letter, which she posted. On the following day (Feb. 5th) Browning appeared to be very drowsy and there were convulsive movements of the limbs. Fearing uræmia I at once took measures accordingly and saw him again at night, at 10 o'clock. Though free perspiration had been induced the drowsiness continued and it was with difficulty that any reply could be obtained to questions.

Next morning (Feb. 6th) at 10 o'clock a man called upon me and I was struck by his general resemblance to my patient, but this was speedily explained by his stating that he was the brother of Browning, who, he informed me, died at four o'clock that morning. He said that he had arrived shortly after my departure the previous night and had found his brother sleeping heavily, but that he awoke at midnight, just recognised him, and then relapsed into deep sleep. "At four o'clock my brother had a fit in which he died." Upon my inquiring into the nature of the "fit"

he gave me the symptoms of uræmic convulsions and I remarked that I could not express surprise considering the grave condition of the patient. In reply to my questions the "brother" explained that he was the only living relative of the "deceased," who had lost his wife two years previously through accidentally taking poison. He wished the "body" to be removed from Vauxhall Bridge-road lest it should be an inconvenience in the house, and I suggested that a respectable undertaker would take charge of it. He paid my account, saying that he wished to take the receipt to his brother's solicitors. I filled in the certificate of the cause of death in the usual way. He supplied me with the necessary details. Owing to his description of the "fit" in which death had been said to occur I certified to uræmia consequent upon acute nephritis. A little later the landlady called upon me and explained that she had admitted the "brother" the previous night and had expressed surprise to him the next morning that he had not summoned her or sent for the medical man when Browning died, but had been told that it was of no use, as death had supervened almost immediately. She was concerned because the "body" was locked up and no one had been to "lay it out." I told her that although neither required by law nor the custom of the profession I should carry out my usual habit of inspecting the corpse, and that she need not worry further.

Some two hours later I called, and the "brother" being still absent I asked if a key could not be found for the folding-doors which separated Browning's room from that wherein the fire had occurred. I said that I did not wish to have to pay a second visit, and that if any difficulties were made as to the room being entered in the "brother's" absence I would be responsible, as he could have no objections to my seeing the body of my patient. On opening the door a seal was broken and this first aroused my suspicions that there was something wrong; but on looking at the bed there was dimly to be seen in the darkened chamber the outlines of a human body covered by a coverlet. Upon removing the latter I found the corpse to be a "make up." Fearing foul play to my patient I at once searched the room, but finding nothing to corroborate my suspicion I locked the door and immediately went to Gerald-road police-station and reported the facts. Thence I proceeded to the registrar's office, and ascertaining that the certificate had not been registered, I left instructions that if anyone presented it the police should be communicated with at once.

Later in the day, accompanied by Detective-Sergeant Bedford of the B Division, I went to the house, and a search revealed that Browning was a senior medical student and that he held a policy in the Pearl Insurance Company for £200. Whilst we were in the house the so-called "brother" arrived, and being confronted with the detective and myself confessed that he was at once the patient, the corpse, and the brother, and that he had done all this to make his relatives believe him dead, as he had just come out of prison. He said that he had no intention of making an improper use of the certificate, and handed it back to me. Questioned as to his illness he replied: "I have been ill, very ill, and am still ill, but I made the most of my symptoms, and I added albumin to the samples of urine sent to you for examination. My temperature was genuine." He further stated that after my last visit on the night of the 5th he had got out of bed and shaved off his moustache, and that disguised he had slipped out of the house and re-appeared as the "brother." Like myself the landlady did not recognise him either that night or on seeing him the next morning, so clever was the change in his appearance. The evidence before Mr. Shell at Westminster Police-court and the subsequent trial before Mr. McConnell, K.C., at the Clerkenwell Sessions, whereat Browning was charged with making a false statement and obtaining a certificate of death by false pretences, ended in a sentence of nine months' imprisonment.

In conclusion, Sirs, may I be allowed to draw a moral from this strange case? That moral is, the desirability of legislation whereby it shall be made necessary that after death from natural causes in a case that has been attended by a duly qualified medical man the dead body shall be seen by a registered practitioner before the certificate is given, and that such practitioner shall certify, not merely as at present the *cause* of death, but also the *fact* thereof. The State should be responsible to the medical man for this visit and for giving the certificate. If I understand rightly, the desirability of such a change in the law was pointed out to a Government Commission some years ago but nothing was done in the matter.—I am, Sirs, yours faithfully,

GIDEON W. B. MARSH,
L.S.A., B.A. Lond., F.R.Hist.S.

Tachbrook-street, S.W., Feb. 25th, 1901.

MEDICAL MEN AND LIFE INSURANCE PROPOSALS.

To the Editors of THE LANCET.

SIRS,—Doubtless in common with all other practitioners, I am constantly receiving letters from life insurance offices asking for information concerning friends or patients wishing to have their lives insured. The questions often look simple enough, but probably include one which to a medical man who has known his friend or patient for a few years, and his family for more, is not so simple as it looks—"Is there anything else in the history of the patient or his family which the office ought to know?" The actuary is kind enough to add that any reply to such a communication will be regarded as confidential; in other words, that you may give away your friend's or your patient's chances of insurance at ordinary rates without the risk of his knowing that you have done it. There is something in this assurance which shows that the offices are conscious that they are acting, to say the least, questionably. I have long absolutely objected on principle to give such information to offices. They have their own experts to investigate the medical facts of cases and are quite capable of getting all the information necessary for their own protection from the applicant or his lay friends without putting his medical friend or adviser into the false position of serving two masters. The offices have only one excuse—that the proposer often quite innocently gives them a reference to his medical friend or medical adviser, and as far as I know the medical profession has not, as a whole, or through any of its principal authorities, objected to this use of medical men.

I write in the hope that a little ventilation of this point will show the unreasonableness of the practice and lead to its discontinuance by the offices. No fee which they could pay would alter the ethical aspect of the case—except for the worse. I am, Sirs, yours faithfully,

Highbury-place, Feb. 28th, 1901. J. G. GLOVER.

PERFORATION OF THE BOWEL IN TYPHOID FEVER.

To the Editors of THE LANCET.

SIRS,—Professor Osler's plea for the prompt surgical treatment of perforation of the bowel in typhoid fever and your leading article thereon, both of which were published in THE LANCET of Feb. 9th (p. 386 and p. 413), should appeal with great force to all members of the medical profession. It is not too much to say that the entire profession is under deep obligation to Professor Osler for speaking his mind so emphatically on this subject through your widely-read columns, and also to you, Sirs, for your earnest endorsement of his important recommendations. It surely now behoves every medical man in attendance on a typhoid fever patient at once to take steps which will enable him, should the necessity arise, to give his patient the benefit of prompt surgical treatment, and a heavy responsibility will attach itself to the individual who fails to follow Professor Osler's advice.

There is one point in Professor Osler's paper to which I should like to draw attention, and this is the remark that perforation of the bowel as a complication of typhoid fever is liable to occur in severe examples of the disease, or in cases associated with delirium, diarrhœa, hæmorrhage, or other abdominal symptoms. Having once lost a patient from a perforating typhoid ulcer who was the subject of the so-called ambulatory form of the disease and who, until the rupture occurred, which took place whilst at stool, was going about his daily work, I am in a position to bear testimony to the oft-repeated statement that this disease, in apparently its mildest form, may terminate fatally from perforation. Bristowe in his work on Medicine points out that perforation not infrequently occurs in patients who have never taken to their beds, and Taylor asserts that in some cases the illness is so slight that patients go about their ordinary occupations until, perhaps,

the use of aperients leads to a fatal perforation, while Professor Osler himself states that in rare instances typhoid fever is unsuspected until perforation occurs. I need not, perhaps, quote any other authorities in support of this well-known insidiousness of typhoid fever. My object in mentioning it at all is to urge upon those concerned the circumstance that skilled surgical aid should be made available *in every case* of typhoid fever, and not only in cases which, from their clinical symptoms, are deemed to be of a serious nature.

Professor Osler divides cases of perforation into three groups. The first group comprises cases which, setting aside the exploratory laparotomy, are found to be inoperable; the second embraces all cases successfully operated on which end fatally from the disease itself; and the third consists of those cases which recover from the disease after successful operation. It seems probable that in the hands of skilful surgeons recovery would be the rule in all cases in which the symptoms, apart from the perforation, were slight in degree.

Attention is drawn in Professor Osler's communication to the difficulty occasionally experienced in the diagnosis of perforation of the bowel, and in this relationship I would point out the advisability of an examination of the chest in all doubtful cases. On one occasion, now some years ago, I omitted to take this precaution and believing my patient was suffering from peritonitis treated him with hypodermic injections of morphia every four hours combined with rectal alimentation. On the third day of this treatment the patient hawked up a pellet of blood-stained mucus, and it was then discovered that he had pneumonia of the base of the right lung, of which disease, apart from acute and sudden abdominal pain with quickened respirations, he had previously shown absolutely no symptoms.

I am, Sirs, yours faithfully,

OSWALD BAKER, M.D. DURH.

Welbeck-street, W., Feb. 17th, 1901.

"LEGISLATION AGAINST NATIONAL INTEMPERANCE."

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Feb. 23rd, p. 578, Mr. Aspinall Marsden asks whether some effort cannot be made to establish in our profession a common doctrine on the temperance question. I fear that he cannot have studied your columns very carefully during the past few years and cannot be acquainted with recent literature on this subject. Perhaps, also, he is unaware of the work which has been undertaken by the Society for the Study and Cure of Inebriety. It seems necessary to inform your correspondent that a great effort *is* being made to establish a common doctrine on scientific grounds, but scarcely on the lines suggested by him.

I take leave to object to his suggestion that the modern view regards alcoholism as "a defect of will in relation to intoxicants," and that "the predisposing cause of alcoholism is nervous instability of all kinds." The defective will-power which is supposed to make a man unable to resist the craving for alcohol must be part only of a generally weak will. Does your correspondent deny that the Italians are more sober than the Scots? If he does not will he kindly give us his proof that the Italian is the stronger-minded race of the two? Or, to bring the subject nearer home, does he mean to assert that his teetotal friends tell him that they conquer the desire to imbibe by exerting will-power? Is the explanation not simpler—the teetotaler does not drink because he has no desire? To receive an answer to the question, "Why has the teetotaler no desire?" I refer your correspondent to Dr. Archdall Reid's writings. Then what is this "nervous instability"? What are the causation, pathology, and symptoms of it, if it be a disease? Or is it merely a revived "astral body" or "elementary spirit" of the mystics, or some curious re-christened survival from the iatro-chemical or the vital-fluid school? Or can it be part of some magic diffused from some great man in the profession? It would be well if Mr. Marsden would bring us to closer quarters with this "nervous instability."

The statement that "the children of parents with physical weakness take to narcotics like ducks to water" is far-reaching and awe-inspiring. Does Mr. Marsden mean seriously that parental drinking causes filial drunkenness—that the acquired effects of alcoholism are transmissible? Has he the proof long sought by the scientific world in his keeping? If so, Sirs, may your columns soon be thrown open once more to the exposition of a great discovery.

Your other correspondent "M.D., B.Sc. (Lond.)" is of the serious opinion that some publicans are genuine temperance reformers. Perhaps this is more true than either he or his publican patients imagine. But what are their principles? Do they distribute temperance tracts across the bar? or have they only been reading (and have misunderstood) Dr. Reid's "Present Evolution of Man"? May I tell "M.D., B.Sc.," that I know a wealthy brewer's wife who is a strong and conscientious and active temperance reformer? She collects and preaches to wayward men by the hundred; but the only noticeable effect is that her husband's tied houses are deserted for neighbouring bars, to the undisguised joy of the rival brewery. Are "M.D., B.Sc.'s" publican friends as unselfishly philanthropic?

I am, Sirs, yours faithfully,

Honor Oak-road, S.E., Feb. 25th, 1901. H. LAING GORDON.

THE NEW SYDENHAM SOCIETY.

To the Editors of THE LANCET.

SIRS,—I shall be much obliged if you will allow me a little space in order to direct the attention of your readers to an advertisement which appears in your pages and to explain its bearing. The New Sydenham Society is now in its forty-third year and its last volume was numbered 172. It has a members' list of nearly 1400. In spite, however, of the indications of prosperity which these facts may serve to afford there are others which have made its council of late years somewhat anxious. Its members' list in its palmy days numbered for many years in succession more than 3000, and the decline which has of late been steady has been yet more definite during the last year. This is probably explained by the conclusion last year of its Lexicon of Medical Terms. The council believes that this decline has arisen from perfectly natural causes. The conditions of medical journalism and of the publishing trade have during the society's lifetime been greatly changed. The supply of medical literature is now very liberal and works of real merit published abroad do not now wait long for translation. The machinery of the society is such that it cannot possibly compete in promptitude with private enterprise, nor is it in the least desirable that it should attempt to do so. In brief, the *raison d'être* of the society has been to a large extent removed and the functions which it proposed to itself are now fulfilled by others. Of late the council has encountered increasing difficulty in finding works for translation which should fulfil the two needful conditions of being at once of great and permanent value and likely to be acceptable to a wide circle of readers. Works such as those of Trousseau, Hebra, Charcot, and Hirsch are no longer available. There are plenty of valuable monographs on special subjects, but they would interest only a few and their publication by the society would certainly lead to resignations of members. The works which it undertakes must be of general interest, or its numbers, and with its numbers its efficiency, will increasingly decline.

Under the circumstances described it will not cause surprise when I state that the council has had under its serious consideration the propriety of winding up the society's affairs. It possesses sufficient funds in hand to complete last year's issue of books and it has also property of considerable value in back stock. It could therefore close its life with dignity, and the present year appears to some of us a very suitable time for doing so. There are, however, not a few members of its council and other friends of the society who are strongly averse to the idea of closing its career. It need not be said that prior to any such procedure a public meeting of its members would be called with whom the final decision would rest. Before, however, taking any further steps the council has decided to submit a proposal to the profession at large, and it is in order especially to explain this that I now trespass on your space.

It was during the years in which the "Atlas of Skin Diseases" was in course of issue that the members' list was best maintained. The "Atlas of Pathology" since undertaken has not perhaps proved equally acceptable and its issue has been impeded by want of funds. The council's present proposal is to widen the scope of this latter work and to make it an "Atlas of Pictorial Illustration of all Subjects relating to Diagnosis in Medicine, Surgery, and

Obstetrics." The materials for such an atlas already collected (from all sources) are abundant, and in their selection the council would have expert knowledge at its disposal. The cost of the production of illustrations of this kind has been much reduced of late years, and from estimates which have been obtained it is calculated that if a sufficient number of subscribers could be secured four or five fasciculi of from eight to 10 plates can be produced annually and the work completed in five years. During that time the council proposes to abstain from undertaking the publication of any printed volumes with the single exception of one a year to consist of a collection of papers or lectures from foreign sources translated as promptly as possible after their publication. It may also, if funds allow, publish one or more supplements to its Lexicon. In order to ascertain the amount of support which might be expected for the proposed work a somewhat detailed prospectus has been prepared and has been distributed to all members of the profession resident in certain cities and towns. Dublin, Brighton, Manchester, and Glasgow, with a few others, have been selected. Our agent, Mr. Lewis, 136, Gower-street, will be glad to supply this prospectus to anyone applying for it (post free). In the meantime the council will be glad to receive communications from those interested in the proposal. It will be needful that a members' list of at least 2000 should be secured.

I have only to add that in case the society should not be encouraged to continue its existence and undertake the proposed atlas that it is possible that the latter may be published independently of it. There would, however, be obvious advantages in its being done by the New Sydenham Society. The present organisation would be kept going and, further, an annual volume of translated monographs would be secured.—I am, Sirs, yours faithfully,

JONATHAN HUTCHINSON,
Hon. Secretary to the New Sydenham Society.

Feb. 26th, 1901.

"GASTRIC HÆMORRHAGE AND ITS SURGICAL TREATMENT."

To the Editors of THE LANCET.

SIRS,—I am very sorry that my attention has only just been drawn to a letter on the above subject from Mr. J. Basil Hall in THE LANCET of Feb. 16th, p. 510, too late for my reply to reach you in time for insertion on the 23rd. If Mr. Hall will re-read my paper I think he will find that particular care is taken to mark the difference between so-called chronic and acute hæmorrhage, and that all my arguments are employed to try to elucidate the question of what is the best method of arresting the hæmorrhage in acute gastrorrhagia, it being taken for granted that surgical treatment is nearly always demanded in chronic but only occasionally in acute bleeding from gastric ulcer. If Mr. Hall will refer he will also notice why the second case was reported, though the bleeding was dependent on injury and not on ulcer; the reason being that I wished to give "a brief description of all the cases of hæmatemesis on which I had operated."

With regard to the facts of the case, I was sent for to operate on a perforating wound of the stomach, this diagnosis having been made because of the vomiting of blood directly after the accident. When I saw the patient I thoroughly investigated his case and personally made careful inquiries as to the hæmatemesis, both at the time, while the patient was being prepared for operation, and subsequently; so that there is no need to alter in any way the abstract in THE LANCET, taken by me from the report of the case given by my house surgeon, Mr. Levi, in the *British Medical Journal* for 1897, page 77, where occurs the following:—

> The nature of the injury is remarkable in that the perforating instrument, being somewhat blunt at the end, must have pushed aside the stomach and colon instead of perforating them, though the fact of blood having been vomited shows that the stomach must have received the impact of the file, and have suffered injury to its internal coats.

The interest of the case lies in the fact of there being no further hæmorrhage after the abdominal lavage without any operation on the stomach itself, as is stated fully in the abstracted notes. The fact of the first patient on whom pylorectomy was performed for a chronic ulcer of the pylorus that had been bleeding for some time having subsequently suffered from cicatricial contraction of the opening between the stomach and pylorus is no argument against pylorectomy having successfully combated the bleeding from a chronic gastric ulcer, on which account simply an abstract of the case is given. The subsequent history of this case is included in my statistics of gastro-enterostomy, now almost ready for publication.

Had I described, under operations for chronic hæmatemesis, the cases of slight coffee-ground vomiting so common in chronic ulcer and in cancer of the stomach, on which I have operated the list would not have been limited to the few cases given at the end of my paper; but Mr. Hall, despite his criticisms, must be fully aware that very serious bleeding, leading even to a fatal termination, may occur under the form of so-called "coffee-ground" vomit.

I see no need, therefore, because of these criticisms to alter my opinion as to the desirability of such cases of chronic hæmorrhage being considered in a paper treating of gastrorrhagia, and in this view Mr. Hall will find, if he studies the literature of the subject, that I am supported by authorities whose views are not to be lightly set aside.

I am, Sirs, yours faithfully,

Park-square, Leeds. A. W. MAYO ROBSON.

"PERSISTENT METRORRHAGIA."

To the Editors of THE LANCET.

SIRS,—Dr. J. Inglis Parsons[1] has done well in bringing forward the treatment by electricity of what he calls "persistent metrorrhagia," but as it might be supposed from his remarks that the treatment is new for such cases I think it right, in justice to the memory of Dr. Apostoli, to say that of the 24 patients I saw treated by him in Paris in May, 1887, five were cases such as Dr. Parsons describes, two being complicated by retroversion. I have found electricity most satisfactory for this condition for the last 13 years and can corroborate all Dr. Parsons says in its favour. I find, however, that shorter sittings and apparently fewer applications are sufficient. I advocate, as Apostoli did, the strongest doses that can be borne without pain and begin if possible with 100, as against Dr. Parsons's 50, milliampères.

I am, Sirs, yours faithfully,

Feb. 25th, 1901. SKENE KEITH.

"ISOLATION HOSPITALS."

To the Editors of THE LANCET.

SIRS,—You challenge me to produce any memorandum of the Local Government Board, however antiquated, which may afford some grounds for the "stamping-out" thesis. The disillusionment came too early to permit of the Board's falling into any such blunder. The attitude of the officials of the Local Government Board of that day is well exemplified by the evidence given before the Commission on Small-pox and Fever Hospitals by Dr. Thorne Thorne, the report of which Commission was presented as early as August, 1882. The Hastings Bill was then being wriggled through the House of Commons, urgency being claimed for it on the ground that, with such powers as would be obtained under its provisions, the "stamping out" of certain infective diseases—notably scarlet fever—would only be a question of time. The same brilliant promises had been, or were being, made in Huddersfield, Oldham, Bolton, Nottingham, and elsewhere, not by enthusiasts (from whom I am supposed to have borrowed my idea), but by steady-going and sometimes highly qualified medical men who had no other end in view than the stamping out of infective diseases. The evidence in question is very significant and it forms very interesting reading to-day. Here is an excerpt. Seventh day of the Commission, Jan. 6th, 1882.

> Lord BLACKFORD: You would say that whenever compulsory notification and isolation hospitals co-existed the effect has been to considerably facilitate the isolation of infectious diseases?
>
> Dr. THORNE THORNE: Yes, the effect has been considerable where there has been a good hospital and the Act was properly administered. I can give two instances which I think will be typical of that, and the first I would quote would be Leicester. In 1870 an epidemic of scarlet fever occurred, when there was no hospital, no system of registration of infectious diseases, and between the middle of September and the end of December 217 deaths resulted. The next epidemic was in 1875. A hospital had been provided, but it was only in partial use and still there was no registration of infectious diseases. Between the middle of September and the end of December in that year 31 cases were admitted to the hospital, and the deaths in the borough were 94. In 1879 the Notification Act came into operation; it unfortunately came into operation after an epidemic of scarlet fever had commenced, but it was immediately put into operation in the middle of September and between that date and the end of December 159 cases were admitted to the hospital and the deaths in the borough were only 65. A more striking case is that of Warrington. A similar Act came into operation in 1879, and towards the end of June, 1880, isolated cases

[1] THE LANCET, Feb. 23rd, 1901, p. 547.

of scarlet fever began to appear in the town, and between that date and December of that year 52 scarlet fever patients had been removed to the hospital as the result of this Act. They had been removed from 44 houses, some containing more than one family, and in those houses there were 101 children who had not had scarlet fever, yet in only one house did a second attack occur, this result being attained by the fact that notification led to immediate removal.

Now come we to Dr. Thorne Thorne's recantation. On March 24th, 1882 Question 5321, we find the Chairman asking: "I believe you wish to make some qualification of the evidence you gave upon a former occasion?"

Dr. THORNE THORNE: Yes. Referring to my evidence given in January last as to the measures taken at Leicester and Warrington I have thought it right to add some more recent evidence. ..... I feel that the evidence I gave as regards Leicester and Warrington is open to the inference that in those boroughs the joint operation of a system for the compulsory notification of infectious diseases and the provision of a hospital for the isolation of those diseases did successfully check the spread of scarlet fever. More recent information does not, in my opinion, bear out that view to the extent I had anticipated. As regards Leicester, for example, a diminished scarlet fever mortality during the epidemic prevalence of 1879 was compared with that occurring during similar epidemics in 1870 and 1875, but the returns of the Registrar General for 1880 and 1881 point out that, notwithstanding the joint operation, since September, 1879, of a system for the notification of infectious diseases, and of a hospital for their isolation, *there has been a very long continued prevalence of scarlet fever*, and when the whole period of the latter prevalence is compared with that of the two former ones it would appear that the later epidemic has mainly differed from its predecessors *by being spread over a longer period*. Then the other instance was the case of Warrington. When I was in Warrington in 1881 I found that the epidemic appeared to have been all but checked, there being only three, four, and three cases of scarlet fever respectively admitted to hospital during the months of January, February, and March, 1881, and only four, four, and three cases notified in the borough during those several months. Since then, however, there has been a marked increase in the disease. I felt that this result did not bear out the inference which might be drawn from my previous evidence.

Question 5323: Are you aware of any sufficient reason why scarlet fever should have increased?

Dr. THORNE THORNE: No.

Dr. CARPENTER: I should like to ask if notification was carried out in Warrington to its full extent?—It would be difficult to find any place where notification had been so effectually carried out.

Question 5328: Notification has failed to "stamp out" disease at Warrington?—Yes.

On March 21st was taken the evidence of Mr. George W. Hastings, M.P., whose Bill, as I have already said, was then before the House of Commons.

Question 5112 (Dr. Carpenter): You believe that notification is required for the purpose of repressing and "stamping out" infectious diseases?

Mr. HASTINGS: Yes.

It is perfectly evident, then, that "stamping out" was the end and aim of those who originated this movement, and the idea that infectious diseases could and would be "stamped out" by such means was held largely notwithstanding the fact that there were not only no data to go upon but all previous experience (e.g., the prevalence in many hospitals of *hospital gangrene*) pointed to the fact that the aggregation of the sick—infective and other—was a mistake.

You make me say, Sirs, that "vital statistics are the third degree of comparison of unveracity." I respectfully point out that I neither said this nor anything like it. What I did say was that these were the only statistics upon which any sort of reliance could be placed. Like Mr. Jonathan Hutchinson "I distrust all statistics—no one more than I." I am not going to traverse the statement quoted from Whitelegge's book. Any man who knows and has worked with Dr. Whitelegge as I have would think twice before he tried to controvert his carefully collected facts. That "epidemics occur at more or less irregular intervals in most of the large towns" cannot, I submit, be received as a satisfactory explanation as to why preventive institutions when dealing with an infective disease each case of which can only have arisen from a previously existing case are impotent in the discharge of the functions for which they were established, even when isolating 90 per cent. of the cases.

You accuse me, Sirs, of changing my ground. Not so. If you hold that, before condemning these institutions *in toto* I ought to have backed up my condemnation by the publication of data, I shall cry *peccavi*. I hope shortly to bring before the profession the question as to what has been the effect on diphtheria of "isolation." I shall show that if hospitalism has blocked the way of sanitary progress so far as scarlet fever is concerned its effect has been infinitely worse in the case of diphtheria. I shall endeavour to prove that the way to prevent disease does not lie in the direction of aggregating the diseased. Sirs, the isolation hospital is the record achievement of misdirected effort in our time. To my certain knowledge this fact is known and recognised by many who are in the public health service. Why have so few the courage of their convictions? In what danger from what quarter does a man stand for the fearless expression of his opinions? What is the mystery?

Your readers will be interested, Sirs, in learning what views are beginning to prevail in Germany on this important question. The distinguished writer, Hueppe, hits off the situation admirably when he says (speaking of the central authority): "Instead of being always prepared to act in the spirit of preventive hygiene for the most part plods on in the good old way with 'fresh emendations to the appendix of the modified supplement of the most recent provisional administrative instructions.'" I give the views of this distinguished bacteriologist with the more pleasure because isolation hospitals had their inception in a crude and unscientific conception of the lessons to be learned from discoveries which had been made in the field of bacteriological research during the Pasteur-Tyndall-Miguel epoch. The sanitarian, impatient of tried methods—which, by-the-bye, had by no means been found wanting—and always on the *qui vive* for short cuts to the accomplishment of the ends he had in view, imagined that the royal road to disease prevention ran through that *inextricabilis error* which the bacteriologist had prepared for the medical scientist to wander in and get lost. Hueppe, in the last edition of his "Principles of Bacteriology," 1899, claims that the way to prevent the dissemination of disease germs is by improvement in the water and soil, control of the food-supply, and works of sanitation generally.

"Works of sanitation," says this writer, "act upon saprophytes and interfere with the dangerous forms of proteid putrefaction which play a rôle in intoxications and are of importance in the ontogeny and phylogeny of parasites. ..... Again, in the separation of the sick from the healthy we often overshoot the mark and the compulsory conveyance of the sick from the dwelling-place to the hospital is frequently very injurious. ..... The psychic disadvantages, also, are frequently quite considerable, and the abolition of humanity by bacteriology seems to me a step backwards. ..... Cholera convalescents, even after they have perfectly regained their health, may harbour germs for weeks ..... diphtheria convalescents may carry about bacilli for months. On this account compulsory isolation upon the basis of bacteriological findings may lead to the greatest injury. ..... The imprisonment of healthy and convalescent individuals is an inadmissible restriction of personal freedom. ..... In diseases, too, of the character of scarlet fever we have, to the delight of martinets, done too much in the last decade in the matter of isolation. ..... The prevention of infective diseases is to be attained by combating the cause of disease," &c.

In conclusion, Sirs, let our friends of the public health profession be certain that the value of these institutions is being appraised by the intelligent section of the British public and it is a force they will not be able to resist. The individualist has been long weary of the sacrifice of the individual for the questionable good of the rest. The economist, who sees in an institution like ours a threepenny rate with no equivalent advantages, is fretting under the imposition of useless burdens, while the politician is standing aghast at the enormous growth of the municipal debt of this country in which he sees the setting in of the rot in our commercial prosperity.

I am, Sirs, yours faithfully,

Nottingham. EDWARD DEAN MARRIOTT.

*** We publish Mr. Marriott's lengthy communication because we feel it incumbent upon us to afford him an opportunity of replying to a leading article largely dealing with his views, but we do not see that he introduces any new matter quite pertinent to the controversy. He does not refer us to any memorandum of the Local Government Board which would justify the importance which he has attached to the stamping out thesis. He disclaims having written that "vital statistics are the third degree of comparison of unveracity." We refer him to the bottom of page 19 of a pamphlet which he sent us. He will there find these words, "Statistics are being pressed into the service—statistics which are notoriously the third degree of comparison of unveracity."—ED. L.

THE LIFE-SAVING STATION AT WATERLOO BRIDGE.

To the Editors of THE LANCET.

SIRS,—In the year 1872, at my suggestion, the Royal Humane Society established this station and appointed me medical officer thereto. About two years subsequently the station was, by arrangement, handed over to the Thames

Police, whose floating station was near at hand, and I was succeeded by the then divisional surgeon, Mr. Mills, of Southampton-street, Strand. I now, with much pleasure, inclose you a "return" from the superintendent of the Thames Police, showing the excellent work the station has done during the years it has been established. Having regard to the great number of suicidal and accidental drownings annually occurring in other parts of the Thames—notably Battersea, Putney, Hammersmith, &c.—I would ask you to urge the further provision of similar institutions at other parts of the river in the metropolitan area.—I am, Sirs, yours faithfully,

ARCHER FARR, L.R.C.P., L.S.A., &c.,
Late Medical Officer of Health, Lambeth,
Dip. Pub. Health (retired).

High-street, Putney, S.W., Feb. 21st, 1901.

[INCLOSURE.]

THAMES DIVISION.

Return of the Number of Cases Treated at Waterloo Pier Station during the Years 1897-8-9 (Vide Corr. No. 322034).

Year.	1 No. of persons accidentally immersed and brought to the station for treatment.	2 No. of persons who attempted suicide and were brought to the station for treatment.	3 No. of persons who were brought to the station and in each case life was pronounced extinct.	4 Total number of cases brought to the station for treatment.	5 No. of persons apparently drowned and restored to life by artificial means.
1897	8	22	10	40	1
1898	8	16	5	29	—
1899	7	13	16	36	—
Totals for three years	23	51	31	105	1

In a number of cases which cannot be included in column 5, "apparently drowned and restored to life," as there were evident signs of vitality, the sufferer would probably have succumbed to shock and immersion but for the prompt treatment by police. It is not possible to give the number of these cases from the records with accuracy.—WM. C. ROBINSON, Superintendent.

"CONCERNING CERTAIN APPARENTLY INJURIOUS CONSTITUENTS OF POTABLE SPIRITS."

To the Editors of THE LANCET.

SIRS,—In an article by us in THE LANCET of Dec. 8th, 1900, p. 1643, under the above title the statement occurs that "we made experiments upon cats, dogs, and rabbits." This statement we wish to correct in that our own experiments were only made upon cats and dogs. At the time of writing we had really in our minds not only our own experiments but those of a previous worker—viz., Cohn.[1] Our paper was intended only as a preliminary communication and experimental details will be given fully and compared with the results of others in a subsequent paper.

We are, Sirs, yours faithfully,

LAUDER BRUNTON.
F. W. TUNNICLIFFE.

Devonshire-street, Portland-place, W., Feb. 25th, 1901.

THE COVENTRY DISPENSARY.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Feb. 2nd, p. 353, under the head of "The Battle of the Clubs," there are some remarks concerning the Coventry Dispensary which the staff will be glad if you will allow them to correct. It is untrue that the reply which the staff received to their memorial was that "if they were not satisfied with their position another staff could be procured to take their places." Nothing whatever was said in the reply which could be thus construed. It is also untrue that the committee do "not hand over all the money received and thus exploited them" (the staff). All the money is divided amongst the staff after the working expenses have been paid. The number present at the meeting was 108, not 160, and so far from being unanimous there was a very large proportion who refrained from voting either for or against the resolution.

I am, Sirs, yours faithfully,

W. J. PICKUP,
For the Staff of the Coventry Dispensary.

Swanswell, Coventry, Feb. 23rd, 1901.

[1] Archiv für Experimentelle Pathologie und Pharmakologie, vol. xxxi., p. 40.

MEMORIAL TO THE LATE PROFESSOR TOM JONES.

To the Editors of THE LANCET.

SIRS,—It is proposed to establish some memorial of Professor T. Jones in the Owens College, and it is thought that his personal friends, and perhaps others, may wish to take part in providing the necessary funds.

No appeal will be made, but the treasurer or secretaries will be glad to receive contributions from those who desire to honour Professor Jones's memory.

The exact form the memorial will take necessarily cannot be settled till the amount of the fund is known, but it has been suggested that an exhibition or prize would be a suitable record of Mr. Jones's work.

It is not desired to limit in any way the amount of individual subscriptions, and it is hoped that those who may see this letter will bring it to the notice of other friends.

Subscriptions may be sent to either the honorary treasurer or the honorary secretaries.

Among the amounts already promised are the following:—

	£	s.	d.		£	s.	d.
D. Lloyd Roberts... ...	25	0	0	R. Bowen Hogg (New Zealand)...	5	5	0
Walter Whitehead... ...	25	0	0	W. Thorburn	5	5	0
G. A. Wright	25	0	0	Henry Ashby	5	0	0
Edward Roberts	21	0	0	Joseph Collier	5	0	0
Alfred Hopkinson... ...	10	0	0	H. R. Hutton	5	0	0
J. E. Platt...	10	0	0	W. P. Montgomery ...	1	1	0
F. A. Southam	10	0	0				

The complete total promised is over £600.

We are, Sirs, yours faithfully,

HENRY ASHBY. D. LLOYD ROBERTS.
JOSEPH COLLIER. EDWARD ROBERTS.
ALFRED HOPKINSON, K.C. ALFRED SIMPSON.
F. A. SOUTHAM.
A. MCLAREN. W. THORBURN.
JOHN D. MILNE. WALTER WHITEHEAD.
W. P. MONTGOMERY. A. H. YOUNG.
G. A. WRIGHT, Hon. Treasurer, 16, St. John-street, Manchester.
J. E PLATT, 14, St. John-street, Manchester.
F. J. H. COUTTS, Cromar, Plymouth-grove, Manchester.
} Hon. Secretaries.

January, 1901.

"THE TEACHING OF ANÆSTHETICS."

To the Editors of THE LANCET.

SIRS,—Dr. Frederic Hewitt's letter in THE LANCET of Jan. 19th, p. 212, in reply to that of Lieutenant-Colonel E. Lawrie in the number of Jan. 5th, p. 64, is chiefly characterised by the fact that it is in no way the answer it purports to be. If I may venture to sum up the letters it would be in some such way as this. Lieutenant-Colonel Lawrie says essentially that chloroform administered in a definite way may be given with safety by the ordinary man; while Dr. Hewitt says that chloroform as given in Britain by the ordinary man is very fatal (an undoubted fact, but scarcely an answer), and he hints that this is the effect of climate and not of the method of administration—or, at least, that is what I take his reference to "sunny Hyderabad" to mean. The intention of this letter is to lay stress on Lieutenant-Colonel Lawrie's statement that the effect of the London teaching is to tend to make the anæsthetist incompetent through fright, for I can testify from personal experience as well as from personal observation of the terror with which many recently qualified men in London approach the administration of chloroform, believing as they do that death may occur suddenly and inexplicably from syncope. My own experience was distressing until I realised that if chloroform could be given in India and in Edinburgh with confidence and safety by using a particular

method, it would be my own fault if I could not give it equally confidently and safely in London by using the same method; and so far as it went (some 300 anæsthetics only in London) the experiment, I believe I may say with entire truth, was a complete success.

Dr. Hewitt's observation on the number of deaths in Scotland is irrelevant, for he produces no proof that the drug was administered by Syme's method. *The method is everything.* By all means let the present scandal of sending out men to practise as fully qualified without practical knowledge of the giving of anæsthetics cease, but at the same time do not expect the present rate of mortality from chloroform to drop in Britain so long as the method of administration is that now in vogue. For several years I have been looking in the columns of THE LANCET for the description of a case of death from chloroform poisoning due to heart failure, but although many have purported to be so not one has borne investigation. If this is solving the chloroform problem clinically there are some who may differ from Dr. Hewitt in considering the solution final at present.

I am, Sirs, yours faithfully,

CLAYTON LANE, M.D. Lond.,
Captain, I.M.S.

Calcutta, Feb. 7th, 1901.

THE ORGANISATION OF THE PROFESSION.

(FROM OUR SPECIAL COMMISSIONER.)

(*Continued from p. 582.*)

The Demand for an Increase for Family Contracts.—The Appointment of a Solicitor as General Secretary.—The Systematic Method of Proceeding.—The Strike and its Success.

THE incident which acted as a special stimulant in bringing about the formation of the Northumberland Medical Association was the fact that the Backworth colliery surgeons had of their own initiative demanded 9*d.* instead of 6*d.* per family per fortnight. In answer to this large bills were put into circulation announcing that "The Backworth and District Medical Coöperative Association" were going to give advice from fully qualified medical practitioners with medicines of the best quality procurable, that the time of attendance at the surgeries would be arranged to suit the convenience of the public and to prevent patients having to wait, that in serious cases expert advice would be obtained on the recommendation of the medical officer of the association entirely free of cost, that water-beds, air-cushions, and other appliances would also be provided, and that there would be a trained and certificated nurse at the disposal of the members. All these multifarious advantages were to be secured by the modest payment of 6*d.* per fortnight, not for one individual, but for a whole family. It is true that 6*d* per fortnight per family is generally the sum paid by miners for medical aid in this district. But this sum is very often paid direct to the colliery surgeon. There is no organisation, no coöperative society or medical aid company, no lay committee of management acting as intermediary and sometimes taking upon itself to reprimand its medical officer. The more general arrangement is that the cashier who pays the wages to the miners deducts the sum they consent to pay to their medical attendant. But here was a coöperative society stepping in between the surgeon and his patients and proceeding to advertise in a tradesman-like manner. Though at that time the Backworth practitioners had no organisation to support them they determined to resist, and they sent in notice that they would not undertake to attend a whole family for less than 9*d.* per fortnight. The Backworth and District Medical Coöperative Association at once concluded that they would be able to import a medical officer, and they advertised in several papers. But by the time these advertisements appeared the Northumberland Medical Association had been formed and it immediately inserted counter advertisements advising that no one should go, but should first communicate to the association for information as to the dispute at issue. Also, considerable pressure was brought to bear to prevent anyone taking the place of the Backworth practitioners. The Backworth and District Medical Coöperative Association were able to import a medical practitioner, but before they achieved this they had been several weeks without any medical men working under contract. When a case of illness occurred the patients were obliged to seek the advice of a practitioner in the neighbourhood and were treated as private patients and charged the usual 2*s.* 6*d.* fee. The patients, however, did not pay this fee; it was the committee of the Backworth Coöperative Society that undertook to settle these accounts. In one case the amount due reached a considerable sum, but the account was purposely reduced to £50 so that the matter might be brought before a county court. The Northumberland Medical Association financially supported the Backworth practitioner to whom this sum was due, for in the meanwhile he had become a member of the association and the verdict was in their favour, and the miners had to pay the account and the legal costs. This verdict and the unsatisfactory result of importing an outsider finally broke up the Backworth and District Medical Coöperative Association. The miners now consented to pay 9*d.* instead of 6*d.* per fortnight for each household, and thus the medical men, after a struggle that did not last very long, were completely successful.

While this struggle was proceeding the Northumberland Medical Association amalgamated, as already described, with the Newcastle Medical Ethical Society and began to shape out its policy. One of the first points agreed upon was that throughout the county the fortnightly subscription should be 9*d.* and not 6*d.* for a family. Then circulars relating to the Broomhill medical aid organisation showed that there was a good deal of advertising practised in that locality. A deputation from this body was brought to Newcastle and they promised to cease advertising and canvassing. As for paying 9*d.* this they were also willing to do, but they wanted to provide a nurse and for this purpose proposed to deduct 1*d.* from the 9*d.* Then they were in the habit of taking 25 per cent. from the remaining 8*d.* and providing the drugs themselves. Doubtless this meant no loss as the drugs would probably cost 2*d.* out of the 8*d.*, but the objection is to intermediaries between the medical man and his patient. In the mining districts there is no need of societies to organise medical aid and, generally speaking, to manage the medical man's business for him. The paying cashier at the pit's brow collects the subscription as he pays the miners their wages and the colliery surgeon can quite well attend to all the rest himself. In regard to the particular case at Broomhill the matter for the moment stands in abeyance; canvassing and advertising have been abolished, the 9*d.* is paid, but subject to the deductions mentioned.

In regard to the miners in general, the first step has been to secure unanimity, not only among the colliery surgeons concerned, but also throughout the neighbourhood. Thus in six colliery districts on the north bank of the Tyne the 18 surgeons engaged were hesitating, but the President of the Northumberland and Newcastle Medical Association wrote personally to each surgeon and called upon some of them and by persistent personal effort induced them to sign and promise to observe the rules of the association. Counting the practitioners of the outlying districts who might have come in and done some of the work of the 18 colliery surgeons 36 signatures in all were obtained for this neighbourhood. All being now ready the 18 colliery surgeons were not exposed to the unpleasantness of entering upon a dispute with the miners among whom they live. It was from Newcastle that the communication was made and by the general secretary, Mr. Garforth Drury, who is a solicitor. The appointment of a solicitor as the secretary of a medical union is a new departure, but there is a great deal to be said for it. In this the Northumberland practitioners followed the example of the County of Durham Medical Union and the work is likely to be done in a business-like manner and there is less chance of committing some legal blunder. Then there are the office, the clerks, and everything necessary available every day. The communication made was worded as follows: "We have been requested by the council of the Northumberland and Newcastle Medical Association to apply on behalf of their members for a fortnightly payment from the members of"—here followed the names of the miners' organisations or collieries—"of 9*d.* from all householders and married men for medical attendance. The members of our association in your districts are," and here followed the names, not only of the 18 colliery surgeons, but of all the surgeons in the outlying districts, making 36 names in all. After this display of unanimity the notification continued: "And we are

requested to give you a fortnight's notice from the date hereof, after which time they will, as members of this association, be under an obligation to us not to accept less than the above rate. The reasons we advance for this rise in fees are: (1) the illegality now of employing any but qualified and registered medical men as assistants; (2) the increased cost of medical education, which now takes five years to complete instead of two and a half years; (3) the increasing difficulty of obtaining, and greater cost of, assistants' services; (4) the greater cost of drugs and surgical dressings; and (5) the increasing use of expensive instruments."

It will be seen that the whole responsibility is assumed by the medical union. The local practitioner who gives in his resignation is but a pawn in the game; he refers the miners' committees and all their deputations to the Medical Association. It is Mr. Rutherford Morison who, as President, has to answer all the objections and to receive all the abuse; but, generally speaking, the miners have recognised that the demands made were fair and just. In two places, however, on the north bank of the Tyne there has been opposition. In the first of these the resistance was very virulent. The men would not pay the 9*d*. and the colliery surgeons had to request the cashier at the colliery offices not to accept any men under 9*d*. Thereupon a deputation was sent to Mr. Morison asking him to put off the matter for a month, and after much discussion he consented to a postponement for a fortnight. This delay terminated with the end of last year and then another fortnight's prolongation was accorded so that Mr. Morison might go to the district and address a meeting of miners so as to explain the matter to them. Here he was pretty sharply heckled and the next thing that occurred was the publication in various newspapers of an advertisement inviting medical men down to the district. The Medical Association at once published counter advertisements urging medical men not to go to this district. Nevertheless, some applications for the vacant post were made and the miners accepted two medical men. The first candidate, however, failed to put in an appearance; the second had settled upon the day of his arrival, but Mr. Morison succeeded in obtaining his address and wrote to him at length. According to the answer received this medical man had been misinformed as to the true state of affairs and now promised not to go. Subsequently another practitioner accepted the offer, but telegrams were sent to him by the President of the Medical Association and his arrival was also stopped. Now it is reported that someone else is coming and letters and telegrams have been despatched to warn him off, but the result is not yet known. This local strike has lasted some three weeks and Mr. Drury has written to the local practitioners to say that he will support them in county-court actions against their patients who do not pay the 2*s*. 6*d*. fees. Thus the method of action is first thoroughly to blockade the district and to prevent the arrival of any outside help, and then to county court all patients for 2*s*. 6*d*. fees till such time as they consent to contract for 9*d*. instead of 6*d*. per fortnight per household.

In the second district where resistance has been offered the miners, as explained above, offered to pay the 9*d*., but wanted to provide the drugs themselves and to deduct a portion of the money for that purpose. Here the objection is against the formation of lay committees acting as intermediaries between the practitioners and their patients. Altogether and up to this date applications have been made in 17 collieries, and in 13 cases the increase of remuneration was acceded to without demur. In at least three out of the four other cases the Northumberland and Newcastle Medical Association has succeeded in preventing any outside practitioners answering the advertisements published and taking up the vacancies. Thus the efforts made have been, on the whole, very successful, a success in which the miners themselves have largely contributed by the reasonableness and fairness which they have shown in the vast majority of the cases.

Newcastle, Feb. 25th.

PREVENTION OF PHTHISIS.—A public meeting of the Gloucester, Somerset, and Wilts Branch of the National Association for the Prevention of Consumption and other Forms of Tuberculosis will be held at the Guildhall, Bath, on March 6th, under the presidency of the mayor, when an address will be given by Sir James Crichton Browne.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Health of the City.

THE report of the medical officer of health, Dr. Alfred Hill, for the fourth quarter of the year 1900 presents some interesting details, among others an exceptionally low birth-rate and an unusually satisfactory death-rate, the former being 29·4 per 1000, the latter 18·2 per 1000. Certain parts of the city show marked contrasts. Dr. Hill points out that the value of the zymotic death-rate has been greatly depreciated in recent years by the use of the term "enteritis" as a synonym for diarrhœa and expresses the hope that in future the complaint will be certified as due to "zymotic" or "epidemic enteritis." The cases of diphtheria were less numerous; 30 of those reported occurred in the Blue Coat School, the scholars having to be disbanded. A recurrence took place among a few scholars on their return. Advantage was taken of bacteriological knowledge for no less than 455 specimens from the throats of the scholars were examined at the University laboratory. Certain sanitary defects in the school were remedied and no more cases happened.

The Mond Gas Scheme.

Questions of health and comfort are closely connected with purity of the atmosphere. This depends largely on the commercial undertakings in manufacturing areas. In and around this city are many large works and manufactories which contribute greatly to the vitiation of the surrounding air by pouring forth dense volumes of smoke and emitting fumes of a noxious and disagreeable character. Some of these evil results, it seems, may be combated and rendered far less detrimental by the aid of scientific discoveries of recent date. The subject was discussed on Feb. 21st at an important meeting of those interested in the industrial life of the Midlands. The object of the meeting was the consideration of the Bill now before Parliament for conferring powers upon the South Staffordshire Mond Gas (Power and Heating) Company. It was stated upon high authority that the introduction of this gas into the district would be an enormous benefit and advantage, because the gas could be made cheaply and the sulphate of ammonia contained in the fuel could be preserved instead of being thrown away as it has been for so many years. It would be suitable for driving machinery and would save all cost of stoking and clearing away ashes, besides being free from tar and dust. It was stated by Sir Alfred Hickman that the use of Mond gas as compared with ordinary gas was analogous to the use of charcoal as compared with coal. Principal Lodge of the Birmingham University expressed his opinion that so long as they continued to burn crude coal in a fashion which he condemned as barbarous and half-civilised so long would the chimney shed its sombre shadow on our industrial existence. It may be the beginning of an evolution in our town life if the promoters of this scheme realise their aspirations in the project before them.

The Value of District Nurses.

The twenty-ninth annual meeting of the friends of the Birmingham District Nursing Society was held on Feb. 19th under the presidency of the Lord Mayor (Alderman Edwards). The report showed that during the past year 2501 cases were nursed and 57,432 visits were paid by the society's nurses. The expenditure had increased and an adverse balance of £40 was shown. The value of the work done was pointed out in forcible terms, and also that while the work had greatly increased the number of nurses had not been increased in proportion owing to the want of adequate funds. The comparison with other large towns, such as Manchester and Liverpool, in this particular kind of nursing showed that Birmingham was much behind. Thus in Manchester and Salford there were 55 nurses and five homes, while in Birmingham with much the same population there were 17 nurses only. The subscriptions in the two places were notably different, Manchester raising some £3000 per annum, while Birmingham secured only £579 for the same purpose. Various remedies were proposed which may be successful in placing this useful institution upon the better footing which it deserves.

Feb. 26th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Liverpool School of Tropical Medicine: Health and Sanitation in West Africa and the Tropics.

A LARGE and influential meeting was held at the Town Hall on Feb. 12th under the presidency of Mr. Alfred L. Jones, in connexion with the School of Tropical Medicine, "to consider the subject of health and sanitation in West Africa and the tropics in the light of the researches of the three malaria expeditions of the School of Tropical Medicine." Among those present were Sir William S. Church, Bart., the Lord Bishop of Liverpool, Principal A. W. W. Dale of University College, Dr. F. W. Mott, F.R.S., &c. Sir William Church said that two years ago he had the pleasure of being present at the inaugural gathering of the School of Tropical Medicine, and he was pleased to find himself at the present meeting. Referring to the enthusiastic manner in which the movement had been taken up alike by members of his own profession and by leaders of the commercial interests it naturally followed that success was assured. Sir William Church congratulated the school upon its wisdom in sending out three expeditions to the West Coast of Africa and a fourth was now engaged in studying a not less dreadful foe to mankind than malaria in its own haunts. Professor R. W. Boyce said in justification of the wisdom which had originated the movement that three West African expeditions had come back heaped up with results which were now becoming classical. Commercial schemes would have a far greater chance of success from the results of the researches which had been, and were yet to be, undertaken. Speaking of the untimely death of Dr. Walter Myers at Parà in Brazil he said it came to himself as a great shock, particularly as he was responsible for Dr. Myers becoming a member of the expedition. He hoped that they would have not only a thoroughly well-endowed chair of tropical medicine in memory of the late Dr. Myers, but also scholarships connected with it. The Bishop of Liverpool also addressed the meeting and paid a handsome tribute to the citizens of Liverpool for their enterprise in establishing a school of tropical medicine. Major Ronald Ross, late I.M.S., in an interesting address dealt with the three expeditions to the West Coast of Africa. He advocated the importance of Europeans living at a distance of at least half a mile from the huts of the natives, and effectual surface drainage around the European quarters. He also pointed out that the only safe supply of water in the country was the rain. He hoped some day to see tracts of West Africa rendered by careful sanitation as healthy as India.

The Health Committee and the Lady Sanitary Inspectors: the Voluntary Notification of Phthisis.

From a report of the proceedings of the Health Committee it would appear that some members of the committee are sceptical of the value of the services of the lady sanitary inspectors. Alluding to a shocking case of child neglect and domestic squalor reported in the local papers, Alderman Ruddin, J.P., asked what the lady inspectors were doing. He understood that the female inspectors were intended to take notice of such cases. Alderman Roberts said that he thought when these ladies were appointed they would go into the houses of the poor and that the city would get rid of all squalor, crime, and child neglect. The chairman said that there were only eight lady sanitary inspectors. They visited the houses of the poor in the lower parts of the city and gave instructions in domestic matters and the care of children. They reported daily to the medical officer of health. It was an important but difficult work and the ladies were working very hard and, thanks to their tact and kindness, they were now generally well received. Their efforts had already had a good effect on the health of the poorer localities. The cost of the lady inspectors is about £12 per week.—The medical officer of health (Dr. E. W. Hope) has issued a circular letter stating that in future a fee similar in amount to that payable under the Infectious Diseases (Notification) Act will be paid in respect of all cases of phthisis notified in which disinfection of rooms or clothing, or other action on the part of his department, is indicated as desirable. Hitherto no fees have been paid for the voluntary notification of cases of phthisis.

The Lord Mayor's Hospitals Century Fund.

The Hospitals Century Fund initiated by the Lord Mayor for the liquidation of the debts upon the hospitals of the city has now reached £10,016 9*s*. Upon the receipt of a further sum of £130 it is the Lord Mayor's intention to distribute to the charities at the rate of 10*s*. in the pound.

Bequests to Liverpool Charities.

By the will of the late Mr. William Henry Shirley of Allerton, retired steamship owner, who died on Jan. 31st, 1901, the following Liverpool charities will benefit: the Royal Infirmary, £5000; the Liverpool Dispensaries, £4000; the Infirmary for Children, £1000. The David Lewis Northern Hospital, the Royal Southern Hospital, and other charities are also included as legatees.

The Hospital for Cancer and Skin Diseases: an Unenviable Situation.

IN THE LANCET of Feb. 6th, p. 513, reference was made to the friction which again unfortunately exists at this hospital. Further developments, following upon the rejection at the annual meeting of Colonel John Pilkington, the chairman of the committee, have now taken place. As a protest against the exclusion of a gentleman who had used every endeavour to further the interests of the charity, Dr. W. T. Blackledge and Dr. S. Mathews, two of the assistant medical officers, have resigned their appointments. Four members of the committee, including Alderman Grindley and Colonel Frank Walker, have also resigned, as well as the matron, the sister, and all the nurses. Even the domestic servants have declined to be further connected with the institution. Colonel Pilkington, the late chairman, took a great interest in the management of the hospital and was chiefly instrumental in framing new rules and regulations based upon those of the principal hospitals in Liverpool, London, and Dublin. Dr. W. T. Blackledge's name is specially mentioned in the report recently issued to the subscribers at the annual meeting for the creditable manner in which he had performed the additional duties imposed upon him by the absence of his senior at the seat of war. As this charity receives subscriptions and donations from the public an independent and searching inquiry into the whole question is urgently called for.

Feb. 26th.

WALES AND WESTERN COUNTIES.

(FROM OUR OWN CORRESPONDENTS.)

Isolation Hospital at Pontypridd.

As long ago as May, 1895, Dr. William Williams, the medical officer of health of the county of Glamorgan, in a special report upon the isolation hospitals within the county urged the necessity for such an institution at Pontypridd, and from time to time during the subsequent years the urban district council have been reminded of their responsibilities in this direction. In the report referred to Dr. Williams advised that the urban and rural districts might with advantage combine in the erection of a joint hospital. The area of the combined districts is 25,000 acres, with a population of about 50,000 persons. As there appeared to be no prospect of any satisfactory arrangement being made between the two district councils, the urban council have at last decided to build a hospital to serve their own district alone where there is a population approaching 42,000. The Local Government Board have been asked to sanction a loan for £7930, a sum which it is estimated will cover the cost of the site of the hospital, the buildings, and furnishing. There will be an administrative block, two ward pavilions with 10 beds in each, and a laundry and disinfecting block. It is not proposed to erect an observation block and as provision is only made for the treatment of two diseases at one time the accommodation can hardly be said to be adequate for the needs of the district, which is essentially of a working-class character.

Merthyr General Hospital.

The Merthyr General Hospital was established in 1887 with 29 beds and has always been in the fortunate position at the end of each succeeding year of having a balance upon the right side, so that a sum of nearly £600 has accumulated. In 1899 the balance of income over expenditure was £92 and last year it was £39. The total income for 1900

amounted to £1400 and the weekly cost per bed is said to be under £1. During last year 222 cases, including 81 accidents, were treated in the hospital. At the annual meeting of the supporters of the institution held on Feb. 20th Sir William Thomas Lewis was elected president in succession to the late Marquis of Bute, who had during his lifetime contributed from time to time sums amounting to £3000 towards the erection and establishment charges of the hospital. It is proposed to increase the accommodation in the nursing home and to light the entire buildings with electric light.

Health of Aberystwith.

The medical officer of health of Aberystwith states in his annual report that there were only 19 cases of infectious disease notified to him during last year, but he considers that the circumstances surrounding some of the cases showed the need of an isolation hospital. At Llandudno a fever hospital was established in 1881 and in 1897 was enlarged to accommodate 26 patients. It is quite as necessary for a health resort which desires to hold its own among its rivals to provide an isolation hospital as it is to erect a pier or a promenade, and the Aberystwith Corporation will be well-advised if they speedily give effect to the recommendation of their medical officer of health.

Swansea Workhouse.

Upon the resignation early in the year by Mr. D. Howell Thomas of his Poor-law appointments in Swansea the board of guardians decided to divide his district into two portions and to appoint for the town portion and the workhouse a medical officer at a salary of £250 per annum. This combination is not viewed with favour by the Local Government Board. The Board think that it will not permit of systematic attendance at the workhouse and suggest that an assistant medical officer shall be appointed for the workhouse alone who shall reside in or near the establishment and devote his whole time to his duties, while the medical officer for the town district shall act as medical officer for the workhouse for consulting purposes only. The board of guardians have not yet come to any decision in the matter.

Devon and Exeter Hospital.

The annual meeting of the subscribers of this institution was held on Feb. 21st. The medical report stated that 1219 in-patients had been admitted, against 1322 in 1899. The out-patients numbered 5067, compared with 4303 in the previous year. The average daily number of in-patients was 141. The financial statement showed that the total receipts amounted to £12,781 and the expenditure to £14,555. The total deficit of the hospital at the end of 1900 amounted to £2402. The President (Mr. W. Buckingham) made a strong appeal for increased support to the institution and added that the unfavourable balance would be met by realising a legacy from the late Miss S. Northcote of £3000.

Feb. 25th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Asylum for the Insane.

THE annual meeting of the corporation of this institution was held in the City Chambers on Feb. 25th, Sheriff Rutherford presiding. In their annual report the managers referred to the fact that Queen Victoria was for 60 years patroness of the corporation, and that in 1841, when her Majesty bestowed on them this honour, there were only 39 patients. During the year 1900 the number of patients under treatment in the asylum averaged 940, including 377 private patients, for whom various scales of charges existed, and 563 patients chargeable to parochial authorities. The ordinary revenue amounted to £57,139, and after all payments were made there remained a free surplus of £3601. The cost per head of the pauper inmates during 1900 was £31 14*s.*, against £32 11*s.* for the year 1899, the greater part of the decrease being due to the distribution of the fixed charges over a larger number of patients. The number of pauper patients at Morningside was greatly in excess of that for which the asylum was designed. It was probable that more than a year must elapse before the new district asylum was ready for occupation, and the managers could not without anxiety contemplate the prospect of having to find accommodation for the ever-increasing number of paupers. Dr. Thomas S. Clouston, the superintendent, in submitting his annual report said that the past year had been a record one for admissions, the number being 38 over the average of the past five years. The increase had been entirely in rate-paid cases, chiefly from Edinburgh, of whom 400 were admitted during 1900, a number which was 68, or 20·5 per cent., over the average for the past five years. In seeking for an explanation of such an increase of insanity among artisans and labourers he was inclined to think that the excessive use of alcoholic liquors during prosperous times was to a great extent the exciting cause. The new Inebriates Act was almost a dead letter. On the general question of the increase of mental disease in the country Dr. Clouston said that in the 20 years 1880–1899 the accumulated aggregate of patients paid for from private sources had increased only 378, or 16 a year, over what the increase of population would account for; but in the case of the rate-paid patients the increase in the accumulated aggregate had been 2646, or 124 a year, over what the increased population would account for. In the northern and Highland counties, which were either rural or bordering on the sea, the increase had been 80 per cent.; while in the rest of Scotland it had been 42 per cent., and in Edinburgh there had been a slight decrease relatively to the augmentation of population.

Glasgow Royal Infirmary.

IT is understood that negotiations are proceeding between the managers of the Jubilee Committee regarding the financial obligations of the reconstruction scheme. In the meantime the Glasgow Archæological Society, influenced, presumably, by the verdict of the Institute of Architects, has passed a resolution protesting against the adoption of any design likely in any degree to impair the æsthetic effect of the neighbouring cathedral. The society expresses the opinion that the present elevation of the infirmary is "dignified and suitable to the locality." Apart altogether from the question of the practical value or otherwise of the new plans it is felt in many quarters that it would be a mistake to remove the front elevation of the present building. This possesses both historic and architectural value and its loss would be inadequately compensated for by the substitution for it of a brand new Jubilee porch.

The Small-pox Epidemic in Glasgow.

In consequence of the reduction in the number of cases of small-pox in Glasgow an official statement will in future only be issued once a week. The latest bulletin appeared on Feb. 23rd, when the cases in hospital numbered 355. Dr. A. K. Chalmers in his report attributes the shrinking of the epidemic to the widespread recourse to revaccination which has occurred during recent weeks. He warns the public that the danger is not yet over and commends the action of the corporation in recommending revaccination as a condition of service in the various departments. The report also contains a fairly plain hint that the standard of domestic and personal cleanliness in many districts of the city falls far short of what is necessary both for individual and public well-being.

Microscopical Society of Glasgow.

At a meeting of this society on Feb. 21st Professor John Glaister lectured on "The Intercommunicable Diseases common to Man and the Lower Animals." The lecture dealt with the principal diseases capable of being transferred from animals to man and was illustrated by an excellent series of preparations and micro-photographs. On the motion of the chairman, Dr. Rankin, Professor Glaister received a cordial vote of thanks.

Success of Glasgow Students.

Much satisfaction is felt in medical circles at the announcement that at the recent examination for the Indian Medical Service the first place on the list was gained by Mr. Anderson G. M'Kendrick who is a Glasgow graduate and a son of the popular professor of physiology. Dr. Norman Scott, who gains the fifth place in the competition, is also a graduate of Glasgow University.

Unusual Legal Case.

A case of a somewhat unusual character recently came before the Glasgow Police-court. It appears that three adults residing in a house from which a man suffering from small-pox had been removed to hospital refused either to be revaccinated or to go to a reception house. The police authorities therefore applied to the magistrate for a warrant to authorise their detention and this was accordingly granted.

Dr. Chalmers, who gave evidence, said that the house consisted of only two apartments and could not be properly disinfected while people were occupying it.

Medical Officer for Paisley.

Dr. Alexander Robb of Hamilton has been appointed medical officer of health of the burgh in succession to Dr. William Robertson, who has received a similar position at Leith.

Feb. 26th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal University of Ireland.

AT a meeting of Senate of the Royal University of Ireland, held on Feb. 21st in Dublin, among other matters the following resolution was unanimously adopted:—

That, in the opinion of the Senate, the relations of the University with its own colleges and students and with other colleges and students are unsatisfactory, and that it is most desirable that a Royal Commission should be issued to inquire into the working of this University as an examining and teaching body in relation to the educational needs of the country at large, and to report as to the means by which university education in Ireland might receive a greater extension and be more efficiently conducted than it is at present.

If the Government, acting on this suggestion, appoints a Royal Commission the whole question of Irish university education will again be thrown into the melting-pot, and if only some stable condition of affairs arise instead of the present uncertainty the inquiry will do good. I understand that the Senate have also taken action on another important question. There have been constant complaints about the character of the examinations in medicine not only in the Royal University, but in its predecessor, the old Queen's University. The examiners are now instructed to confine their examinations to the subjects treated in the text-books in common use in the medical schools of the kingdom and to the cases met with in ordinary hospital practice. Clinical examiners will not be allowed to examine candidates on cases under their own care. In addition to these excellent instructions the Senate passed resolutions unanimously to appoint for the October examinations extern examiners in surgery, midwifery, ophthalmology, and pathology. It is obvious that these examiners must be men of standing and experience not connected with any of the Irish medical schools.

Londonderry Infirmary.

Mr. Lee Hogg has proposed to fit out at his own expense the waiting room and extern department for the infirmary in Londonderry.

Feb. 26th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Impure Water-supply to Hospitals.

AT the Hospitals Medical Society, a meeting of which was held on Feb. 1st, M. Troisier remarked that as hospital reform was in the air it was interesting to note that the water laid on to the Paris hospitals was in many cases drawn from impure sources. Close to his own wards there were three taps. Two of these delivered water from the Seine and one water from the Dhuys. It was quite certain that only too often the patients and even the nurses drew water from the tap nearest to hand without looking at the labels over them. One of M. Troisier's patients had to have his stomach washed out. This was done with impure water and on the thirty sixth day of his stay in the hospital he developed typhoid fever. M. Ballet replied that typhoid fever could be caught in the most unexpected ways. Thus a delirious patient of his used to have baths. Sometimes she would disappear under the water dragging with her the nurse. They both developed typhoid fever on the same day. M. Letulle said that the matter was worthy of the strictest attention. At the Boucicaut Hospital, which is quite new, seven cases arose. Of these three were patients, two being pregnant women and one a case of tuberculosis. Besides these there were four nurses, two from the lying in wards and two from the medical wards. Of these women five could not have been infected from outside—namely, the three patients and the two lying-in ward nurses, for they had never seen a case of typhoid fever. Only the two medical nurses could have been infected directly. Thus five out of seven cases were probably due to the impure water.

Hæmatemesis during Appendicitis.

At the meeting held on Feb. 12th M. Dieulafoy read a paper before the Academy of Medicine on the cases of a certain number of patients who had suffered from hæmatemesis during attacks of appendicitis. M. Dieulafoy said that the complication must be fairly frequent, as he himself had seen six cases in less than a year and various other observers had published accounts of the same thing. The hæmatemesis is always ushered in by nausea and bilious vomiting; it attacks children as well as adults and commonly recurs two or three times at short intervals. Moreover, it is very often fatal. The quantity of blood brought up at each attack is very considerable—namely, 200, 300, or as much as 800, grammes. It sometimes comes up in a liquid condition and at other times as clots of a deep black colour. The attacks occur almost without exception in persons who have been operated upon too late and is as a matter of fact a manifestation of a general infection. That this is so is proved by the fact that the attack is preceded by other symptoms of toxæmia, such as jaundice, urobilinuria, albuminuria, and the like. It is the discharge of this toxic principle by the gastric mucous membrane which gives rise to the hæmorrhage, the immediate cause of which is small ulcers which are generally situated in the neighbourhood of the pylorus. The conclusion which M. Dieulafoy drew from these facts is that appendicitis is an infection which is a menace to the whole organism. The chances of a cure are greater in proportion to the early removal of the focus of infection.

The Therapeutics of Lecithin.

M. A. Gilbert and M. L. Fournier communicated a paper to the Society of Biology at the meeting held on Feb. 9th on the Therapeutics of Lecithin in the Human Being. Most observers agree in attributing to this substance a considerable rôle in the process of nutrition and as favouring the assimilation of nitrogen and of phosphorus. The lecithin which M. Gilbert and M. Fournier employed was obtained from the yelk of eggs. Given to animals in the laboratory, whether by the mouth, by subcutaneous injection, or by injection into the peritoneal cavity, in doses of from two to five grammes at a time or in small doses such as 0·10 to 0·20 of a gramme, long continued, it appeared to be absolutely devoid of any toxic quality. The animals gained rapidly in weight, a fact which was very noticeable in young animals which rapidly overpassed the controls in weight. M. Gilbert and M. Fournier gave lecithin to patients by the mouth in the form of a pill in doses of from 0·05 to 0·15 of a gramme every two days. In the case of some patients with advanced tuberculosis either on one or both sides they obtained the following results. The appetite and strength improved and the weight went up in spite of high fever which existed in one case. In two cases the cough became less frequent, the expectoration lessened, and the quantity of bacilli in the sputum diminished. M. Gilbert and M. Fournier have also given lecithin to patients suffering from neurasthenia and other forms of nervous disease but found it difficult to draw any definite conclusion from the results obtained. In general, however, they thought that the appetite and general health improved. They finally concluded (1) that the prolonged administration of lecithin is no more harmful to man than to the lower animals; and (2) that the therapeutic results so far obtained, although not complete, are yet encouraging and justify the use of lecithin in the human being.

Carbonic Oxide Poisoning.

A defective stove has again been the cause of a terrible catastrophe. Nearly all the inmates of a hospital ward have been poisoned by the emanations from an apparatus of this kind. One of the wards in a private asylum at Noisy le Sec, near Paris, contained nine beds. Of the occupants of these seven were found in the morning to be dead, and of the two who were still alive one has since died. The inquest showed that, according to the evidence of the survivor, the fault lay entirely with the patients. The stove was always put out at 8.30 P.M., but the patients who had been complaining of the cold smuggled in some charcoal during the day and charged the stove afresh after the departure of the nurse. They filled it so full that they raised up the lid of the stove and so the gases escaped into the room with lethal effect.

Feb. 26th.

Obituary.

WILLIAM JAMES FLEMING, M.D., F.F.P.S. GLASG.

WE regret to announce the death of Dr. W. J. Fleming of Woodside-terrace, Glasgow, which took place on Feb. 25th. The deceased, who was only in his fifty-second year, received his medical education at the Universities of Glasgow and Edinburgh. In 1872 he became qualified as M.B. Glasg. and L.F.P.S. Glasg. In 1875 he was admitted F.F.P.S. Glasg. and in 1879 he proceeded to the degree of M.D. An industrious and energetic worker, he made several contributions to medical periodicals, one of them being an article on the Treatment of Disease of the Spinal Column, which appeared in THE LANCET of April 27th, 1889.

Our Glasgow correspondent has sent us the following appreciative notice of Dr. Fleming's work and character: "During the whole of his professional life Dr. Fleming has been well known in medical circles and has taken a prominent part in hospital work and medical teaching. Commencing his career as a lecturer on physiology in the Royal Infirmary School of Medicine, he afterwards became surgeon to the infirmary and at the end of his term of service was elected to be one of the managers of the institution by the Faculty of Physicians and Surgeons. In this latter capacity he took deep interest in the proposed scheme of reconstruction, and his influence in securing a sounder recognition of the position of the visiting staff was much appreciated by the profession. Besides teaching clinical surgery at the Royal Infirmary he was at various times lecturer on surgery at Queen Margaret College, examiner on the same subject in the University, and surgeon to the Royal Hospital for Sick Children. He was also for a number of years a member of the examining board for the Scottish triple qualification. Personally, Dr. Fleming commended himself to his friends by a gentleness of heart which from the stranger was concealed by a manner that seemed to be free from all sentimental leanings. But his practical kindliness was as sincere as it was unostentatious. To all his *confrères* he was known for his undeviating straightforwardness and honesty of purpose. He has left behind him in many hearts a sense of personal loss which will not readily be extinguished and more than one medical institution is his debtor for public service rendered with resolute courage and unquestioned rectitude of motive."

JAMES NICOL, M.D. GLASG., J.P.

BY the death of Dr. James Nicol, which occurred on Feb. 20th, Llandudno has lost one of its oldest and best known residents. Dr. Nicol was born at Carnwath, Lanarkshire, in 1815, studied medicine in Glasgow and Edinburgh, and graduated as M.D. of Glasgow University in 1839. He commenced practice in Carnwath, but in 1858 removed to Llandudno where he made a special study of the climate and instituted systematic meteorological observations which have been carried on continuously up to the present time. For about 20 years he held the appointment of medical officer of health and in this capacity he was able to accomplish much in the way of improving the sanitation and the water-supply of the place. The building of the pier and the laying out of the road round the Great Orme were also largely due to his energy and public spirit. Dr. Nicol was the author of small treatises "On the Climate of Llandudno," "Bathing, its Principles and Practice," and "Llandudno as a Health Resort." He was a Member of the Scottish Meteorological Society, a Fellow of the Royal Meteorological Society of England, and a Justice of the Peace for the county of Carnarvon.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Hermann Pfeiffer of Darmstadt, formerly Director of the hospital there and author of many memoirs on Hygiene. He was 71 years of age.—Dr. R. B. Cole, Professor of Midwifery and Gynæcology in the University of California, San Francisco.—Dr. H. Shapiro, Professor of Medical Diagnosis in Helena Pavlona Clinical Institute, St. Petersburg.—Dr. Augusto da Rocha, Professor of Clinical Medicine in the University of Coimbra, Portugal.—Dr. Leopold Weiss, Professor of Ophthalmology in Heidelberg.—Dr. Theodor Husemann, Professor of Pharmacology in the University of Göttingen, at the age of 67 years. He was a voluminous contributor to medical literature.—Dr. Julius Homann of Hamburg, one of the Assistants in the Kiel Hygiene Institute, has died from enteric fever which he contracted while engaged in the study of pure cultures of virulent typhoid bacilli.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—In February the following candidates passed in the subjects indicated:—

Surgery.—G. Aldridge, London Hospital; E. A. Dunn (Section I.), Royal Free Hospital; J. C. Furness, Glasgow and Charing-cross; B. Goltein (Section I.), Vienna; H. B. Hanson (Sections I. and II.), Royal Free Hospital; H. A. Higgens (Section II.), Guy's Hospital; H. Jessop (Section II.), Birmingham; R. A. Jones (Section I.), St. Mary's Hospital; S. Page (Section II.), Birmingham; J. Ward (Sections I. and II.), Sheffield; and G. H. Watson, St. Bartholomew's Hospital.

Medicine.—C. E. C. Child (Sections I. and II.), Charing-cross Hospital; H. E. Darlington, Birmingham; M. E. Fendick (Sections I. and II.), Royal Free Hospital; G. J. W. Kelgwin (Section I.), London Hospital; G. R. Lucas, Edinburgh and Charing-cross Hospital; F. McTavish (Sections I. and II.), Toronto; S. Page (Section II.), Birmingham; E. R. Risien (Section II.), St. Bartholomew's Hospital; and P. Southan (Sections I. and II.), Birmingham.

Forensic Medicine.—C. E. C. Child, Charing-cross Hospital; H. E. Darlington, Birmingham; E. N. de V. Dawson, St. Thomas's Hospital; G. J. W. Kelgwin, London Hospital; F. McTavish, Toronto; S. R. Thomas, Guy's Hospital; and M. J. Williams, St. Bartholomew's Hospital.

Midwifery.—C. H. Brookes, Durham and St. George's Hospital; A. E. U. Hawkes, Liverpool; W. J. Hogg, Belfast; H. Howells, St. Thomas's Hospital; J. Kemp, Manchester; J. C. McCarroll, Belfast; D. Morrow, Middlesex Hospital; E. C. Pratt, Birmingham; J. Ward, Sheffield; C. Watson, Dublin and Westminster Hospital; and E. Yoxall, Birmingham.

The diploma of the Society was granted to the following candidates, entitling them to practise medicine, surgery, and midwifery:—C. H. Brookes, M. E. Fendick, J. C. Furness, H. B. Hanson, A. E. U. Hawkes, S. Page, and G. H. Watson.

FOREIGN UNIVERSITY INTELLIGENCE.—*Bologna:* Dr. Bolognini has been recognised as *privat-docent* of Paediatry and Dr. Fochessati as *privat-docent* of Orthopædics.—*Copenhagen:* Dr. J. Fibiger has been appointed to the chair of Pathological Anatomy in succession to the late Professor Lange.—*Cracow:* The gynæcological clinic, under Professor Jordan, has had to be closed for the purpose of thorough disinfection, no less than five cases of septicæmia having occurred within a fortnight.—*Giessen:* Dr. Dannemann has been recognised as *privat-docent*.—*Göttingen:* Dr. A. von Hippel of Halle has been appointed to the chair of Ophthalmology.—*Gratz:* Dr. Adolf Jarisch, Extraordinary Professor of Dermatology, has been promoted to the Ordinary Professorship of this subject.—*Greifswald:* Dr. Alexander Westphal, a son of the late well-known neurologist of Berlin, has been appointed Extraordinary Professor of Psychiatry and Neurology.—*Halle:* Dr. H. Schmidt-Rimpler of Göttingen has been appointed to the chair of Ophthalmology.—*Heidelberg:* Dr. Franz Nissl and Dr. Georg Marwedel have been promoted to Extraordinary Professorships. Dr. Braus of Würzburg has been offered an Extraordinary Professorship of Comparative Anatomy.—*Kieff:* Dr. A. Muratoff, Professor in the University of Iurieff (Dorpat), has been appointed to the chair of Midwifery and Gynæcology in succession to Dr. Rein.—*Lemberg:* Dr. Adam Solowij has been recognised as *privat-docent* of Midwifery and Gynæcology.—*Moscow:* Dr. Minakow has been appointed Extraordinary Professor of Forensic Medicine.—*Pavia:* Dr. Costanzo Zenoni of Turin has been recognised as *privat-docent* of Pathological Anatomy.—*Tokio:* Professor Beneke, Prosector in the Brunswick Hospital, has been offered a Professorship.—*Vienna:* Dr. Arthur Katz has been recognised as *privat-docent* of Internal Medicine.

THE LATE PROFESSOR A. HUGHES.—At the meeting of the court of governors of the University College of South Wales and Monmouthshire held on Feb. 20th, Dr. W. T. Edwards stated that £800 had been received towards the £1000 required for the museum of anatomy proposed as a memorial to the late Professor A. Hughes.

BRISTOL HOSPITAL SUNDAY FUND.—At a meeting of the council of this fund, held on Feb. 20th under the presidency of the Lord Mayor, the honorary treasurer reported that he had received £1619 from 215 collections, and that there were still the results of 25 collections to come in. Last year the fund realised £1314. The council decided to distribute £1500 amongst the various Bristol medical charities.

PRESENTATION TO A MEDICAL MAN.—On Feb. 9th, at a numerously attended social meeting in the Tweeddale-street Board School, Rochdale, under the auspices of the St. John Ambulance Corps, Mr. Richard B. Sellers, M.R.C.S. Eng., L.R.C.P. Edin., was presented by the corps with a pair of silver flower vases, as a token of appreciation for his instructive lectures to the members of the ambulance classes.

CHILD INSURANCE.—The grand jury at the Bristol Assizes on Feb. 21st found true bills against an insurance clerk and his wife who are charged with attempting to murder the man's young son. The child was insured, and the grand jury submitted a presentment recording their opinion that the abuse of child insurance should be inquired into and dealt with by Parliament. Mr. Justice Darling promised to forward this to the Home Secretary and said that no doubt it would receive attention.

AN INTERNATIONAL CONGRESS OF NURSES.—There is to be an International Congress of Nurses in Buffalo, U.S.A., next September, during the time of the Pan-American Exposition. We are informed that the Congress meets with the intention to celebrate the new century and to cement and strengthen the national and international organisations which the nurses of America, Great Britain, the English colonies, Denmark, and Holland have for the last few years been intent upon developing.

ROYAL COLLEGE OF SURGEONS IN IRELAND: FELLOWSHIP EXAMINATION.—The following candidates having passed the necessary examination have been admitted Fellows of the College: Mr. E. A. Chartres, Mr. Patrick I. Dempsey, Mr. A. Fullerton, Mr. J. J. Harding, Mr. P. K. Joyce, Mr. G. M. Keating, Mr. R. J. D. Kenny, Mr. J. M. Morrissey, Mr. J. O'Donoghue, Mr. R. H. Oliver, Mr. C. J. Powell, Mr. T. O'C. Redmond, Mr. T. N. Smith, Mr. E. F. Stephenson, Mr. E. W. Stoker, Mr. F. Warren, and Mr. T. Wilson.

PATRICROFT WORKHOUSE HOSPITAL.—The new infirmary of the Barton-upon-Irwell Union Workhouse was recently opened. The estimate for the work so far completed—i.e., the infirmary itself—was £18,900, but the entire scheme, which includes nurses' home, &c., will cost £30,000. It is on the pavilion principle, extending to right and left from the central offices which are connected by a corridor to the workhouse itself. Dr. J. M. Rhodes was present and in the course of the proceedings said he thought "they hardly appreciated as they should the enormous progress that had been made in regard to poor-law administration since the accession of the Queen." When the Act of 1834 was passed £1 15*s.* of the income of every man in the country was paid annually for the relief of the poor. "To-day they had a splendid institution and yet the cost per head was only the odd 15*s.*" But more important still, there was no longer the same grinding down of the poor and never was so much consideration shown to them as at the present time. At the beginning of the Queen's reign "the paupers were put five and six in a bed and even fever patients two or three together. The imbeciles herded together on heaps of straw." It does not seem probable that we shall ever fall back to such a condition of barbarism.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Army Medical Service.

IN the House of Lords on Thursday, Feb. 21st, the Earl of KILMOREY and Earl SPENCER invited from the Government a statement of their intentions with regard to the recommendation of the South African Hospitals Commission of an expert inquiry into the steps required for the improvement of the Army Medical Service. In response to this invitation both Lord RAGLAN, Under Secretary of State for War, and the Marquis of LANSDOWNE, the late head of the War Office and present Secretary of State for Foreign Affairs, spoke. The latter said that it was the intention of Mr. Brodrick to have recourse to the best expert advice that he could obtain, whether in the medical profession or elsewhere, but whether it was to be taken by the appointment of a committee or a commission, and whether the inquiry should or should not be departmental, were matters for which Mr. Brodrick desired time for further consideration.

Medical Act (1858) Extension Bill.

General LAURIE has introduced again in the House of Commons his Bill for the extension of the Medical Act of 1858. In a memorandum attached to the measure he says that since the passing of the Medical Act very great advance has been made in medical education throughout the empire, and especially in the self-governing colonies, and the Bill provides "that where the examinations and course of education at the principal colonial schools of medicine are in all respects the same as those practised in the United Kingdom, and subject to the supervision of the General Medical Council, medical men from Greater Britain should, when proved to be properly qualified, be admissible to serve the empire in the naval and military and civil services of the Crown."

HOUSE OF COMMONS.

THURSDAY, FEB. 21ST.

Precautions against Small-pox.

Mr. JOHN CAMPBELL asked the President of the Local Government Board what steps were being taken to preserve London from the danger of an outbreak of small-pox epidemic so prevalent in Glasgow.—Mr. WALTER LONG replied: I am happy to say that according to the latest returns there is at present practically no small-pox in London. It is by the vaccination of unvaccinated persons and the revaccination of adults that effective steps can best be taken to prevent an outbreak of this disease.—The recital of the second part of this answer was received with loud cheers of commendation.

FRIDAY, FEB. 22ND.

South African Hospitals Commission.

Mr. BRODRICK, in the course of a reply to a question, gave an assurance that any case in which a witness before the South African Hospitals Commission might be proved to have been prejudiced in any way by his giving evidence would be dealt with by the War Office in an exemplary manner.

MONDAY, FEB. 25TH.

The Small-pox Epidemic in Glasgow.

The LORD ADVOCATE, in reply to a question, said that he was informed by the Local Government Board that during the period from April 7th, 1900, to Feb. 21st, 1901, 1086 cases and 122 deaths from small-pox were reported in Glasgow.—Mr. O'DOHERTY asked the Chief Secretary to the Lord Lieutenant of Ireland (1) if his attention had been directed to a case of small-pox near Cardonagh, county Donegal imported into that district by a man lately arrived from Glasgow, and what steps (if any) the Local Government Board for Ireland would take to prevent any more such cases being imported from Glasgow; (2) whether he was aware that the request made by the public health committee of the Londonderry Corporation to the Local Government Board to issue a sealed order preventing the importation of old clothes and rags into that city and district from Glasgow during the prevalence of the small-pox epidemic in the latter city had been refused; and (3) whether, considering the intimate touch of Londonderry and district with Glasgow, the Local Government Board would direct the Londonderry port sanitary authority to take precautions with respect to the examination of the cross-Channel steamers similar to those taken by them during the late bubonic plague epidemic in Glasgow.—Mr. WYNDHAM replied: The medical inspector of the Local Government Board, who has made careful inquiry into the allegation contained in the first paragraph, states that it is absolutely without foundation. The Board were unable to comply with the request made by the public health committee, as it has not been shown that small-pox is conveyed through the medium of old clothes. The Board do not consider it necessary to enforce in respect of small-pox the precautionary measures which were held to be essential in respect of bubonic plague. The Board have informed the authorities at Londonderry and other ports that vaccination and revaccination provide the best safeguards against a spread of small-pox.

Vaccination in Leicester and Gloucester.

Mr. COGHILL asked the President of the Local Government Board whether vaccination was now being generally practised in the towns of Leicester and Gloucester; whether he could state the number of unvaccinated persons in each town and of persons who had received certificates of exemption as conscientious objectors; and what steps the Local Government Board were taking to secure the due enforcement of the law with regard to vaccination.—Mr. WALTER LONG replied: The reply to the first part of the question is in the negative. I cannot state the number of unvaccinated persons in Leicester and Gloucester, but from the latest returns it appears that in Leicester of the children born during the 18 months ended June 30th last 388 have been vaccinated, while certificates of conscientious objection have been obtained in respect of 534. The corresponding figures as regards Gloucester are 879 and 396. Medical inspectors of the Local Government Board visited both towns last year in connexion with the performance of vaccination. As, however, the latest returns are not satisfactory I have decided that further visits shall be paid by inspectors as early as possible with a view of ascertaining in what manner the duties of the vaccination officers are now being carried out.

The Examination of Imported Food.

Mr. O'MARA asked the President of the Board of Agriculture if he

could state how many samples of consignments of imported food had been taken for analysis by the Commissioners of Customs (under the Sale of Food and Drugs Act, 1899) during the year 1900, how many such samples had been found adulterated, and what was the nature of such adulterations; and whether any prosecutions had resulted.—Mr. AUSTEN CHAMBERLAIN (on behalf of Mr. Hanbury) replied: The number of samples analysed was 1560, of which 26 were reported against. In seven cases fines were recovered. In the remaining 19 the circumstances were not such as, in the opinion of the Commissioners of Customs, would have warranted prosecution. Legal proceedings are now pending in four cases which have occurred since the beginning of the present year.

TUESDAY, FEB. 26TH.

Inoculation for Typhoid Fever.

Sir WALTER FOSTER asked the Secretary of State for War if he was aware that Professor Wright of Netley had stated, as the results of inoculation for enteric fever in one regiment, that the incidence of the inoculated was 0·55 and the death-rate 0·27 per cent., while in the uninoculated it was 6·14 and 3·35 per cent. respectively; and whether he could inform the House of the results of inoculation for typhoid fever or enteric fever among the forces serving in South Africa.—Lord STANLEY (on behalf of Mr. Brodrick) replied: The statement of Professor Wright referred to the official statistics from India for the 15th Hussars. There are no statistics available for the forces in South Africa. It will not, I fear, be possible to go into them properly until the war is over. The pressure on our medical officers for returns of various descriptions is a heavy addition to their pressing duties.

ROYAL COMMISSION ON ARSENICAL POISONING.

THE Arsenical Poisoning Commission met for the first time for the examination of witnesses on Friday, Feb 22nd, in one of the rooms of the Westminster Palace Hotel. All the members of the Commission were present—namely: Lord Kelvin (chairman), Sir William Hart Dyke, M.P., Sir W. S. Church, Professor Thorpe, Dr. B. A. Whitelegge, and Mr. H. Cosmo Bonsor, with Dr. G. S. Buchanan, secretary to the Commission. The Commission is appointed to ascertain with respect to England and Wales the amount of recent exceptional sickness and death attributable to poisoning by arsenic, whether such exceptional sickness and death have been due to arsenic in beer or in other articles of food or drink, and if so, to what extent, by what ingredients, or in what manner the arsenic was conveyed, and in what way any such ingredients became arsenicated; and if it is found that exceptional sickness and death have been due to arsenic in beer or in other articles of food or drink, by what safeguards the introduction of arsenic therein can be prevented.

THE EVIDENCE OF DR. TATTERSALL.

Dr. C. H. TATTERSALL, medical officer of health of the borough of Salford, was the first witness examined, and in reply to the CHAIRMAN he said that he had made special inquiries into the recent epidemic of arsenical poisoning attributed to beer and had prepared a special report on the subject for presentation to the Salford Town Council, the report applying only to the epidemic in the town. This report he offered to the Commission. From the accompanying charts it would be seen at once that there was a great rise in the number of deaths from alcoholism, peripheral neuritis, or multiple neuritis, in the month of June, 1900, and that this continued to increase, reaching its maximum in the month of November. On Nov. 9th Mr. R. D. Cran, Poor-law medical officer of the Regent-road district, called and informed him that he had a very large number of patients suffering from what appeared to be alcoholic peripheral neuritis. His diagnosis had been confirmed by finding that all the sufferers took beer, but he had been surprised to learn that many of the patients had not been excessive drinkers. He obtained samples of beer from public-houses supplied by 14 different breweries, sent them for analysis, and proceeded to make inquiries into the cases of which Mr. Cran had given him a list. It was soon ascertained that the sufferers were all beer-drinkers and several of them were employees of a local brewery. The amount of beer consumed varied very much—viz., from a pint to 16 pints per day. Witness then explained that the preliminary examination of the beer by Professor Delépine was in progress when on Nov. 20th they heard of the discovery by Dr. E. S. Reynolds of arsenic, and this observation was at once confirmed. It had been impossible to obtain anything approaching accurate information as to the extent of the disease. For obvious reasons the public generally had been very reticent and expected the medical attendants to be the same. Almost all the cases returned to him were among the poorer classes of the population, but they were not alone the sufferers. He knew instances where people in the better condition of life had suffered in exactly the same way, though those instances had not been brought officially to his notice. There could be no doubt that a very great number, probably some thousands, had suffered to a greater or less extent in Salford. The number of cases reported was 396, of which 231 were males, 349 females, and 366 sex not stated. One medical practitioner informed him that in August and September he had a great number of cases of herpes zoster and witness knew of several instances where persons who were in the habit of drinking some of the incriminated beer, in strict moderation, found in June, July, and August that the beer caused disturbance of the digestive functions, such as vomiting and diarrhœa, and they ceased to take it. So far as he had been able to ascertain there was a marked falling off in the amount of beer consumed in the district about the end of September, two months before the discovery of the poison, showing that many persons must have been affected in a similar way. In 150 cases the source of the beer was carefully traced and it was found that in every instance where one brewery could be connected with the poisoning, that brewery was using Bostock's sugar. The deaths resulting from the special amount of arsenic contained in Bostock's brewing sugars from May to November could only be ascertained by comparing the deaths from chronic alcoholism, peripheral neuritis, or alcoholic neuritis in the period from June, 1900, to January, 1901, with those from the same causes in previous years, and taking in addition the deaths registered as due to cirrhosis of the liver treated in the same way. Thus from June 1st, 1900, to January 1st, 1901, there were registered from peripheral neuritis 47 deaths, from alcoholic neuritis 10, from multiple neuritis two, and from chronic alcoholism 32 deaths, or a total of 91 deaths in the eight months as compared with seven, the average number for the same period in the preceding five years. This left a total of 84 deaths which might be considered to be due to the poisoning, in addition to those which were certified as cirrhosis of the liver. In the year 1900 there were 52 deaths registered as due to cirrhosis of the liver, as compared with 30, the average for the preceding five years, which left an additional 22 deaths as in all probability due to the poisoning, especially considering that the post-mortem examination of the victims showed that even where large amounts of alcohol had not been taken the liver was greatly hypertrophied. There was one death registered from Addison's disease and he had good reason to believe that this was due to the arsenical poisoning. This made a grand total of 107 deaths in Salford up to the end of January, 1901, probably due to arsenical poisoning from beer, and there could be no doubt that many of the persons still suffering from the effects of the poison would succumb in the near future. He had tabulated the results of replies received from medical practitioners respecting the symptoms of 296 cases. This brought out—running of eye and nose, 106; pigmentation, 68; skin affections, 107; sensory disturbances, 234; motor disturbances, 228; gastro-intestinal troubles, 39; anæsarca, 10; and mental disturbances, 9. The mortality figures showed that women were much more liable to succumb to the effects of the poison than men. Thus, out of 115 deaths 28 were males and 87 were females. It was impossible to say whether this was due to the females taking more of the poison or whether their powers of resistance were less. Probably it was a combination of the two reasons. As to age, the greatest number of cases were amongst persons from 40 to 50 years of age. For obvious reasons it was exceedingly difficult to obtain anything approaching accurate information as to the amount of beer consumed by any individual and there was a strong tendency to minimise the quantity in most instances. The information in the following table, which represented the analysis of 150 cases, had been carefully sifted and made as accurate as possible:—

Small amount, not exceeding one quart daily	53
Medium amount, not exceeding half a gallon daily	44
Large drinkers, exceeding half a gallon daily	53
	150

Assuming that the beer contained on the average one quarter of a grain per gallon, which was, he thought, a fair assumption, the amount of arsenic taken in a week by one of the class of small drinkers would be about half a grain, and considering that one-twentieth of a grain of arsenic would be a dangerous quantity to take daily for an unlimited period it was easy to understand that susceptible persons might be poisoned. The second class would take about one grain per week and the third from two to four grains per week. Witness then explained in detail the precautions taken to prevent the epidemic spreading, and afterwards the processes adopted in brewing beer and in the manufacture of sulphuric acid. In the latter connexion he said that the purest acid was made from native Sicilian brimstone. This alone should be used whenever the ultimate destination of the manufactured product was human consumption. Witness then gave his conclusions. He said it might be considered proved by the clinical symptoms, the presence of arsenic in the urine of patients and in the body of patients who died, that the cause of this outbreak of epidemic disease was poisoning by arsenic. If the beer had been brewed from malt and hops alone no serious damage from poisoning with arsenic could have occurred, although malt more or less impure might have been used by the brewer, and in the light of the results of this investigation it might be considered that there was no reason why beer brewed from malt and hops should under any circumstances contain more than one two-hundredth part of a grain per gallon, as the use of anthracite fuel in the preparation of malt and subsequent brushing and polishing gave a practically pure article. Again, it was quite clear that glucose and invert sugar as usually prepared were absolutely innocuous substances, and considering the fact that chemical science was progressing so rapidly in the direction of replacing natural products with manufactured articles it would appear unreasonable to forbid the use of these substances provided that some means could be devised by which carelessness of one or more individuals could be prevented from endangering the lives and health of the public. At the same time it should be recognised that any person replacing a natural substance by a manufactured article in the preparation of any food stuffs took upon himself the responsibility of seeing that no injury should ever result from such substitution. He would suggest that chemical manufacturers be compelled by law to label every article whether apparently meant for use in the preparation of food stuffs or not which contained any known poison, with a statement that such poison, naming it, was present. The Food and Drugs Act should also be amended so as to make the contamination of food stuffs with poisonous matter in appreciable quantity, whether to a dangerous extent or not, and whether to the knowledge of the seller or not, an offence within the meaning of the Act. The seller could always and ought always to protect himself by obtaining a warranty from the person from whom he obtained the substance. This investigation had shown the great importance of some improvement being made in the arrangements for the notification to the health authorities of outbreaks of disease. Certain specified infectious diseases were notified under the Infectious Diseases Notification Act, but it should be recognised by the medical profession that the public had provided an organisation for the express purpose of dealing with outbreaks of disease, and notification of any disease of an unusual character should take place as a matter of course. Immediately after the beginning of December he sent out forms to every medical practitioner in Salford asking for particulars of cases and he received lists from a large number. He sent out forms again in January asking for any further cases, the

result being that in January he heard of 39 cases which were not included in the original list. These 39 cases were all inquired into and in every instance the illness was found to have commenced and the symptoms to have been clearly marked before Dec. 1st. He had not found any cases of illness resulting from confectionery, or jams, or syrups. Samples of these substances had been analysed but with entirely negative results. It was stated in evidence more than once in the inquiries before the coroner that Bostock's invert sugar and glucose were supplied only to brewers and witness obtained this information when he visited Bostock's works.

By Sir WILLIAM HART DYKE: He could not indicate what proportion of cases had escaped notice. The problem was one on which he had thought a good deal, but he could see no way of getting at any information that would be of value. The strongest indication that there had been a great amount of illness beyond what was known to the health authorities was the great falling-off in beer-drinking; people gave up beer and took to whisky. When this inquiry began the possibility of the presence of arsenic in beer never occurred to him.

By Mr. COSMO BONSON: It was lead he first thought of, and these beers were analysed for it, but he satisfied himself that the cases were not of lead-poisoning.

By Professor THORPE: It was generally considered that spirit-drinking was the cause of peripheral neuritis, but in these inquiries in Manchester they found that, although whisky might be a cause, beer was a commoner cause than had generally been supposed. In his opinion this epidemic was clearly due to the use of a particular sugar in the making of beer and to that extent was an accidental occurrence. He had, of course, approached the subject purely from the public health standpoint. A number of people were ill. He inquired into all their circumstances and he found one thing in common—they all drank beer. Samples of beer obtained in the ordinary way were found to contain arsenic. Arsenic accounted for the symptoms and he was satisfied without going any further.

By Dr. WHITELEGGE: One of the lessons of this epidemic was that arsenic was more of a cumulative poison than had been supposed. He felt certain that if a return of these cases had been sent to the public officers of health they would have noticed what perhaps one medical man might not have noticed—namely, the increase in peripheral neuritis—and there would have been inquiry. The ideal condition would be a universal notification of disease—all disease—but failing that he thought that it should be generally understood by the medical profession that there was a machinery already provided for inquiry into the causes of death, and when unusual sickness—unusual either in type or amount—existed it should be reasonably expected that a medical practitioner should communicate with the public health authorities.

THE EVIDENCE OF DR. REYNOLDS.

Dr. ERNEST S. REYNOLDS, assistant physician to the Manchester Royal Infirmary and visiting medical officer to the Manchester Workhouse Infirmary, was then examined, and in answer to the CHAIRMAN he said that in this condition, which had been called for many years "alcoholic paralysis," there were certain sensory disturbances quickly followed by certain motor disturbances, certain heart symptoms not infrequently, and also not infrequently certain quite peculiar mental symptoms. The sensory symptoms consisted principally of prickings and burnings in the hands and feet, cramps in the calves, and they were associated also with a very exquisite tenderness found with pressing or squeezing the muscular masses between the fingers. This tenderness was found in very few other conditions. As regards the motor symptoms these consisted of gradual loss of power in the feet and hands, the loss of power being due largely to an inflammation of the nerve trunks in the limbs or peripheral neuritis. This loss of power was so peculiar that a particular form of gait was produced. The hands became paralysed and drooping and in the advanced cases the diaphragm became paralysed so that there was very great difficulty in breathing. The mental symptoms consisted in a very characteristic loss of memory of time and place, so that a patient could not tell how long he had been in the ward. Many of the patients were quite incapable of telling where they were. Those were the symptoms the medical profession had known for many years and such cases were very common in Manchester—so common that in the years 1887 to 1899 at the Manchester Royal Infirmary, where they had 1500 medical cases admitted each year, the average number of cases of alcoholic paralysis was 20 annually. As far as he could hear these cases were more common in Manchester than, say, in Scotland or in London. In chronic arsenical poisoning they got, as a rule, first of all, digestive disturbances, vomiting, and diarrhœa. They next got symptoms of cold in the head, running of the eyes, running of the nose, and bronchial headache. They also got in not a few cases peculiar acute rashes on the body. They then got marked sensory disturbances exactly like those of alcoholic paralysis and also motor disturbances exactly the same as those he had described. He had seen a considerable number of arsenical cases and thinking over them he could not differentiate between the sensory and motor symptoms of the present epidemic and those which he had seen previous to the epidemic in alcoholic paralysis. Later they got certain chronic skin affections marked by a peculiar pigmentation of the skin and a thickening of the palms of the hand and the soles of the feet. Comparing the symptoms of the so-called alcoholic paralysis with those of chronic arsenical poisoning one would say that the sensory and motor symptoms were practically the same, but that the skin symptoms were only found in the arsenical cases. To show that the sensory and motor symptoms were about the same this epidemic in Manchester had been going on for four months and many physicians in Manchester, gentlemen who were thoroughly well acquainted with the appearance of alcoholic paralysis, had been seeing these cases and none of them imagined that they were anything but cases of alcoholic paralysis.

Have you any reasons for doubting whether ordinary alcohol is or is not the cause of the so-called alcoholic paralysis?—It is a very difficult question, and I wish to put my views forward with great diffidence, but there are several points which make me think that ethylic alcohol is not the cause of neuritis.

Dr. REYNOLDS then proceeded to explain his views in detail. For many years it was stated that alcoholic neuritis only occurred in spirit-drinkers. The first case of alcoholic neuritis that he ever saw was in 1885 and that occurred in a gentleman who drank absolutely nothing but beer. Since then he had seen many hundreds of cases of alcoholic neuritis and the sufferers had invariably taken beer either alone or with spirits. On the contrary, he had seen many cases in private and hospital work where the people had taken nothing but spirits and never had he seen a pure spirit-drinker with alcoholic neuritis. He had seen a gentleman who took a bottle of whisky per day and a lady who took a bottle and a half per day. He had at various times inquired of Scotch physicians and had learned from them that in a country where much whisky was consumed there was very little neuritis. Some weeks ago he sent to Aberdeen, Glasgow, Edinburgh, and Dundee, and also to Belfast, and obtained corroboration of his opinion that in this matter it was not alcohol *per se*. Witness then read a long letter from Sir William Gairdner commenting on the rare and exceptional character of the disease in Scotland and suggesting that alcohol though associated with it was not the leading factor in its etiology. Continuing, witness said that although he had not seen neuritis in a pure spirit-drinker, he had no doubt that it had occurred, but in the Manchester district it was infinitely more common among beer-drinkers. Dr. Reynolds having explained what led him to suspect beer as the cause of the mischief and the results of the analyses made, said that the symptoms of the present epidemic agreed absolutely with those of an epidemic which occurred in Paris in 1828 and which was called "acrodynia." In that case nobody thought of its being arsenical. An epidemic occurred in 1888 in Hyères which was undoubtedly arsenical and was due to arsenic having been put into wine instead of gypsum, the pigmentation giving the key to the cause. He had not the slightest doubt that the Paris epidemic was arsenical, for the symptoms described were identical with those he had found in Manchester and had set out in an article in THE LANCET of Jan. 19th, 1901, p. 166, when he had not read the account of the Paris epidemic. Giving the chronological order of the symptoms in Manchester, witness said that digestive symptoms had started first; in perhaps 50 per cent. of the cases they were either vomiting or diarrhœa. The next symptoms were cold in the head and irritation of the larynx and the bronchia. Then came the rash lesions, next the sensory disturbances, the burning of the hands and feet, and then in about three or four days the patients complained of the loss of power, especially in the feet and also partly in the hands. There was difficulty about the classification of cases, due largely to the peculiar idiosyncrasy which people seemed to have as regards arsenic. For instance, a wife in a family died from the disease and at the inquest the husband said that he took quite as much beer of the same kind as his wife and was perhaps well or hardly suffering. One group of cases presented practically all the symptoms, whilst another only presented the symptoms of heart or liver affection—that was to say, they were breathless and had swollen feet, and very few had sensory disturbances. Other cases, again, had the principal sensory disturbances and nothing much else. Others had sensory and motor disturbances, and it was these that looked exactly like an old case of alcoholic paralysis. In these cases a careful examination of the soles of the feet not infrequently revealed scales there, so that it seemed to him very probable that many of the cases which they had been calling alcoholic paralysis they would have found to be arsenical if they had only known the symptoms to look for. It seemed to him possible that quite small quantities of arsenic taken for considerable periods might by accumulating in the system set up a paralysis without any of the other symptoms. Since the beginning of October he had seen in the Crumpsall Workhouse Infirmary 403 cases, 237 males and 166 females, and in November and December in the Royal Infirmary he had seen 170 cases, 110 males and 60 females. Altogether he had seen about 650 cases. These figures showed more males than females, but many women when the symptoms became known were shy about coming to the hospital, and, indeed, did not come unless they were very seriously ill.

By Sir WILLIAM CHURCH: His opinion that alcoholic neuritis was more common in Manchester than in London was based on conversations with London physicians.

By Dr. WHITELEGGE: He was of opinion that alcohol predisposed people to arsenical poisoning.

The Commission then adjourned for a week.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward it to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, for publication in the next number.*

BENNETT, J. H., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory Acts for the Staplehurst District of Kent.

BYERS, JOHN W., Professor, M.D., M.A.O., has been appointed Examiner in Obstetric Medicine and Gynæcology in the Royal University of Ireland.

DEY, ALEXR., M.B., C.M. Aberd., has been appointed Certifying Surgeon under the Factory Acts for the Wooler District of Northumberland.

ELLIS, C. J., M.B., C.M. Aberd., has been appointed Medical Officer and Public Vaccinator for the No. 3 Sanitary District of Battersea, Wandsworth Union.

FLITCROFT, T. E., L.R.C.P. Edin., L.F.P.S.G., has been appointed Honorary Surgeon to the Bolton Infirmary, vice William Gillibrand, resigned.

GOLDSMITH, GEORGE POCOCK, M.D. Durh., M.R.C.S. and L.S.A., has been appointed Consulting Physician to the Bedford County Hospital.

JENKINS, C. C., L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been re-appointed Assistant Medical Officer for the Workhouse at Cardiff.

KINGSFORD, B. H., M.B. Lond., L.R.C.P., M.R.C.S., has been appointed Medical Officer and Public Vaccinator for the Woking Sanitary District, Guildford Union.

LAWSON, T. C., M.R.C.S., has been appointed Certifying Surgeon under the Factory Acts for the Sherston District of Wilts.

LINDSAY, J. A., Professor, M.D., M.R.C.P. Lond., has been appointed Examiner in Medicine in the Royal University of Ireland.

MOYNAN, RICHARD M., M.D., M.Ch. R.U.I., has been appointed Medical Officer for the Borough of Cowbridge, Glamorganshire, vice A. W. Shepherd, deceased.

MYLES, GEORGE, L.R.C.P., L.R.C.S. Edin., has been appointed Certifying Surgeon under the Factory Acts for the Limerick District.

PEACOCK, W. E., M.D. Durh., B.S., has been appointed Certifying Surgeon under the Factory Acts for the Nuneaton District of Warwickshire.

PHILLIPS, F. B. WILLMER, M.A., M.D. Oxon., B.Sc. Lond., M.R.C.S., has been appointed Physician to the Bedford County Hospital.

ROBB, A., M.B., C.M. Aberd., D.P.H., has been appointed Medical Officer of Health for the Paisley Town Council.

SHARPIN, EDWARD COLBY, L.R.C.P. Edin. and L.M., M.R.C.S., has been appointed Consulting Surgeon to the Bedford County Hospital.

SMITH, H. H., L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory Acts for the Uxbridge District of Middlesex.

SMITH, J. LORRAIN, M.D., has been appointed Examiner in Pathology in the Royal University of Ireland.

STACK, E. C., L.R.C.P., L.R.C.S. Irel., has been appointed Assistant Surgeon to the Burton-on-Trent Infirmary.

STAMP, W. D., L.R.C.P. Edin., M.R.C.S., has been appointed Certifying Surgeon under the Factory Acts for the Plympton District of Devonshire.

STEELE, W. C., M.D. Brux., M.R.C.P. Edin., M.R.C.S., has been appointed Certifying Surgeon under the Factory Acts for the Carshields District of Northumberland.

STONE, FREDERICK WILLIAM SMITH, L.R.C.P., L.R.C.S., L.M. Irel., has been re-appointed Medical Officer for the Kalston and North Stoke Districts by the Raynshaw Rural District Council.

THOMPSON, W. H., Professor, M.D., F.R.C.S. Eng., has been appointed Examiner in Physiology in the Royal University of Ireland.

WALKER, J. W. THOMSON, M.B., F.R.C.S., has been appointed Honorary Pathologist and Bacteriologist to the Paddington Green Children's Hospital, London, W.

WHITLA, W., Professor, M.D., has been appointed Examiner in Materia Medica in the Royal University of Ireland.

WILD, R. B., M.Sc Vict., B.Sc., M.D. Lond., M.R.C.P., M.R.C.S., has been appointed Professor of Materia Medica and Therapeutics, Owens College, Manchester.

WILLAN, L. J., M.R.C.S., has been appointed Certifying Surgeon under the Factory Acts for the Dorking District of Surrey.

WOOD, L. E., M.B. Lond., M.R.C.S., D.P.H., has been appointed Certifying Surgeon under the Factory Acts for the Penshurst District of Kent.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BARNHILL POORHOUSE AND HOSPITAL, Springburn, Glasgow.—Male Junior Assistant Medical Officer. Salary £90 per annum, with board and apartments, &c.

BELGRAVE HOSPITAL FOR CHILDREN, Gloucester-street, S.W.—House Surgeon for six months. Gratuity £5, with board and lodging.

BOROUGH HOSPITAL, BIRKENHEAD.—Senior and also Junior Resident House Surgeon. Salary £100 and £80 respectively per annum, with board and washing.

CENTRAL LONDON SICK ASYLUM DISTRICT.—First and Second Assistant Medical Officers. Salary—First Officer, £100 per annum; Second Officer, £75 per annum; each with board and residence.

CHORLTON-UPON-MEDLOCK DISPENSARY.—Resident House Surgeon, unmarried. Salary £130 a year, with furnished rooms and attendance.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria-park. Physician to the out-patients.

CITY OF SHEFFIELD HOSPITALS FOR THE TREATMENT OF INFECTIOUS DISEASE.—Assistant Resident Medical Officer. Salary £150 per annum, with board, lodging, and attendance.

COUNTY OF LANARK: DISTRICTS OF THE LOWER AND MIDDLE WARDS.—Resident Physician for Lightburn Joint Hospital for Infectious Diseases, Shettleston, near Glasgow. Salary £130 per annum, with board, &c.

CROYDON UNION INFIRMARY, Mayday-road, Croydon.—Resident Assistant Medical Superintendent and Dispenser. Salary £120 per annum, increasing to £150, with furnished apartments, rations as per scale, and washing.

CUMBERLAND INFIRMARY, Carlisle.—Resident Medical Officer as House Physician during the first six months, and House Surgeon during the ensuing six months. Salary at the rate of £80 and £100 per annum respectively, with board, lodging, and washing.

DOVER HOSPITAL.—House Surgeon, unmarried. Salary £100 a year, with board, lodging, and washing.

GENERAL INFIRMARY, Gloucester, and GLOUCESTERSHIRE EYE INSTITUTION.—House Surgeoncy. Salary £100 per annum, with board, residence, and washing. Also Assistant House Surgeon for six months. Salary at the rate of £30 per annum, with board, residence, and washing.

HOSPITAL FOR WOMEN AND CHILDREN, Leeds.—House Surgeon for six months, eligible for renewal. Non-resident. Salary at the rate of £125 per annum.

LANARK COUNTY COUNCIL.—Assistant Medical Officer of Health. Salary £140 per annum, with travelling expenses.

LEEDS PUBLIC DISPENSARY.—Honorary Surgeon.

LIVERPOOL ROYAL INFIRMARY.—Honorary Physician.

LIVERPOOL STANLEY HOSPITAL.—Senior House Surgeon. Salary £80 per annum, with board, residence, and washing.

LONDON HOSPITAL, Whitechapel, E.—Surgical Registrar. Salary £100 per annum.

LONDON HOSPITAL MEDICAL COLLEGE.—Assistant Demonstrator of Anatomy. Salary £90 a year.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—House Physician, House Surgeon, Assistant House Physician, and Assistant House Surgeon for six months. Salary at the rate of—House Physician and House Surgeon, £40 a year; Assistant House Physician and Assistant House Surgeon, £20 a year.

NEWCASTLE-ON-TYNE DISPENSARY.—Visiting Medical Assistant. Salary £160 for the first year and £180 afterwards.

NORTHAMPTON GENERAL INFIRMARY.—Physician, not under twenty-five years of age.

NORTHERN NIGERIA, WEST AFRICA.—Medical Officers. Salary £400 per annum and local allowance of 5s. a day during residence.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon. Salary £140 per annum, all found except board.

PARISH COUNCIL OF WESTRAY, Orkney.—Medical Officer and Public Vaccinator. Salary £90 per annum.

PRESTON ROYAL INFIRMARY.—Junior and Assistant House Surgeons. Salaries £80 and £60 per annum respectively, with board, lodging, and washing, &c.

ROYAL ALBERT HOSPITAL, Devonport.—Resident Medical Officer, unmarried. Salary £110 per annum, with board and lodging.

ROYAL HOSPITAL FOR DISEASES OF THE CHEST, City-road, E.C.—Resident Medical Officer, for six months. Salary at the rate of £120 per annum, with furnished apartments, board and washing.

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Ventnor.—Assistant Resident Medical Officer, unmarried. Salary £100 per annum, with board and lodging in the hospital.

ROYAL SEA BATHING HOSPITAL, Margate.—Assistant Resident Surgeon. Salary £60 per annum, with board and residence.

SOUTHPORT INFIRMARY.—Resident Senior House Surgeon. Salary £80 per annum, all found.

ST. MARK'S HOSPITAL FOR FISTULA AND OTHER DISEASES OF THE RECTUM, City-road, London, E.C.—House Surgeon. Salary £80 per annum, with board, lodging and washing.

STOKE-UPON TRENT UNION.—Resident Medical Officer. Salary £200 per annum, with board, washing, and furnished apartments at the hospital.

THE CHIEF INSPECTOR OF FACTORIES gives notice of vacancies as Certifying Surgeons under the Factory Acts at Towyn in the County of Merioneth and at Ballylongford in the County of Kerry.

TORBAY HOSPITAL, Torbay.—House Surgeon. Salary £100 per annum and £5 for the nurses' lectures. Board, lodging, washing, &c.

TOWNSHIP OF MANCHESTER WORKHOUSE, Crumpsall.—Assistant Medical Officer. Salary £110 per annum, with furnished apartments, fire, light, washing, and attendance.

VICTORIA HOSPITAL FOR CONSUMPTION, Craigleith, Edinburgh.—Resident Physician, for six months. Residence, board, and a small honorarium to cover conveyance.

WARNEFORD HOSPITAL, Leamington.—House Surgeon. Salary £100 per annum, with board, washing, and apartments.

WARNEFORD ASYLUM, Oxford.—Assistant Medical Officer, unmarried. Salary £100 a year, with board, lodging, and washing.

Births, Marriages, and Deaths.

BIRTHS.

DE JERSEY.—On Feb. 23rd, at Netherton, Guildford, the wife of Walter B. de Jersey, M.B. Cantab., of a son.

FINLAY.—On Feb. 19th, at Mary's-place, Raeburn-place, Edinburgh, the wife of Thomas Finlay, M.B., C.M. Edin., of a son.

GERVIS.—On Feb. 22nd, at Dyke-road, Brighton, the wife of Henry Gervis, M.A., M.B., of a son.

GORHAM.—On Feb. 21st, at Campbell House, Clapham-common, S.W., the wife of J. J. Gorham, M.D. Irel., D.P.H. Camb., J.P., of a daughter.

OLIVER.—On Feb. 22nd, at Westdene, Maidstone, the wife of Charles Pye Oliver, M.D. Lond., D.P.H., of a daughter.

UMNEY.—On Feb. 20th, at Crystal Palace-park-road, Sydenham, S.E., the wife of William F. Umney, M.D. Lond., of a son.

WILSON.—On Feb. 23rd, at Frederick-road, Edgbaston, Birmingham, the wife of H. Bagster Wilson, M.R.C.S., of a son.

DEATHS.

FLEMING.—On Feb. 25th, at 3, Woodside-terrace, Glasgow, William James Fleming, M.D., F.F.P. & S. Glasg., in his 53rd year.

NICOL.—On Feb. 20th, at Warwick House, Llandudno, James Nicol, M.D., J.P., and F.R.M.S., in his 86th year.

SINCLAIR.—On Feb. 18th, at Mount Pleasant, Liverpool, John Sinclair, M.D., aged 85.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

ANDERSON v. COWARD: MEDICAL ETHICS IN NEW ZEALAND.

A LIBEL case was heard in the Supreme Court at Blenheim, New Zealand, on Dec. 5th and 6th, 1900, before His Honour Mr. Justice Edwards, which is not without medical interest. The plaintiff, Dr. William Anderson, sued the defendant, Mr. G. W. Coward, for alleged libel and slander, claiming £50 damages. To tell the story shortly, Coward had been treated in the Wairau Hospital to which Dr. Anderson is assistant surgeon. After his discharge from the hospital he had published statements casting a slur on the competency of Dr. Anderson. It was also alleged in evidence that Coward had said to sundry persons that he would have lost his leg if he had not changed his doctor. The defendant allowed that "to the best of his belief all he could have said to Mr. Healy was that he really thought he must have lost his leg if he had not gone to Dr. Redman." His Honour awarded plaintiff the full damages claimed with costs, and allowed seven guineas costs for the second day. Questions of medical etiquette were constantly discussed throughout the case, which depended for its medical interest mainly upon the many references to proper professional behaviour. Mr. W. E. Redman, who had treated Coward after Dr. Anderson, and to whom the defendant attributed his recovery, said in his evidence that on coming to Blenheim he had not intended to practise but only to do insurance work. On being asked to stop and to take the place of a practitioner who had recently left he consented and allowed a paragraph to be inserted in the local paper, having learned that such was the custom in New Zealand, setting forth his intention to practise. The paragraph also gave details of his career supplied by himself. About a week after the appearance of this paragraph in the paper he called upon the other medical men in the town—namely, Dr. Anderson and Mr. D. M. Nairn. They were both out and he left his card. It further came out in evidence that Dr. Anderson wrote on behalf of Mr. Nairn and himself saying that "they could not reciprocate" Mr. Redman's courtesy. One or two more letters passed, but Mr. Redman remained a stranger to his professional *confrères*. Undoubtedly this fact had something to do with the spirit in which the libel action was carried on. Had Dr. Anderson and Mr. Redman been friends we can hardly think that the action would have been brought. But we congratulate Dr. Anderson on having won the case. With regard to Mr. Redman's alleged breaches of medical ethics it must be remembered that, although the unwritten laws guiding the medical profession are applicable in spirit to medical men in every clime and of every nation, the details of medical etiquette vary in different localities. As regards a new practitioner calling on others the practice has in London almost dropped out. No metropolitan medical man would be considered by his colleagues in his locality to have committed a *lache* by not calling upon them when he arrived among them. It is a matter upon which he can please himself. Mr. Redman did call upon his brother practitioners, but he did not do so until his advertisement had appeared in the paper. As regards this advertisement a medical man again is, we believe, allowed in certain colonies by common consent to make a simple statement in the lay papers of his intention to practise. One medical man said in his evidence in the case under consideration that a recognised form existed running "Mr. —— has commenced practice at —— and may be consulted ——." But Mr. Redman allowed the insertion of a paragraph setting out details of his career in a way that seemed to be intended to encourage the laity to come to him. This he should not have done. The quack appeals to the public in advertisements to leave their medical men and come to the only real shop for cures; the slightest appearance of such an attitude is a contravention of the spirit of medical ethics.

WHO IS RESPONSIBLE?

M. D. writes as follows:—A engages B as locum-tenent during absence from home. B during this time orders for his own use, without the knowledge or consent of A, an instrument and drugs which when he leaves he takes away with him. Shortly after a bill is addressed to B at A's address and sent in several times. At last it is returned to the sender with "Address not known" written across it. Immediately it is returned to A, still made out in B's name, with a letter saying that the firm hold A responsible for the amount as B was doing a locum-tenent's work for A at the time that the goods were ordered. A is requested to settle the account. Is A responsible? The goods were not for use in his practice and he never saw or heard anything of them until the bill was sent to him. It makes the engaging of a locum-tenent rather a serious thing if he is allowed to run up bills for the principal to settle after his departure.

*** We shall be interested to hear if this position has ever arisen before. We cannot answer the question concerning A's responsibility, which is a purely legal one.—ED. L.

"A CASE OF AUTO-VACCINATION."

To the Editors of THE LANCET.

SIRS,—In the case of auto-vaccination described in THE LANCET of Feb. 23rd, p. 549, by Mr. G. H. Ormsby Mr. F. MacDougall is reported to have stated that he had never seen during his extensive experience as a "public vaccinator" a similar case.

Some years ago in my practice a woman, aged 64 years, nursing her grandchild, got inoculated through a scratch on her left forearm with the lymph from a broken vesicle on the baby's arm with the result that the vaccination went through its successive stages all right, and though this mature dame suffered considerable inconvenience and annoyance for the time being she seemed nothing the worse afterwards for her unwilling experience.

I am, Sirs, yours faithfully,

Brighton, Feb. 25th, 1901. R. HILL SHAW, M.D. Dub.

DEAFNESS AND QUACKERY.

JUDGING by the advertisements which are continually appearing in newspapers and periodicals the unqualified people who undertake to cure deafness must find this business a very lucrative one. In many cases the shameless announcements take up columns or even entire pages in respectable journals and they must consequently cost a great deal of money, so it is clear that the revenue accruing through the publicity thus obtained must in the aggregate be enormous. As an example of the methods adopted by the self-styled "aural specialists" the following hard case may be cited. Mrs. A, a poor old woman who is very nearly stone deaf but contrives to eke out a precarious living by charing, being tempted by an advertisement in a local paper was induced to communicate with the advertiser, who by return of post sent her a formidable packet of papers, including a pamphlet entitled "Deafness and Noises in the Head, with Instructions how they may be Absolutely Cured," from which the subjoined extract is taken:—

> "I was now face to face with the fact that I was terribly deaf and that the specialists and scientists of the day were incapable of curing me. ..... Their mode of treatment was radically wrong. What I really required was a medicine which should reach the minute muscles of the inner ear, as upon their proper action the sense of hearing almost entirely depends, and I commenced experimenting to find out the exact combinations of medicines required to penetrate the 'middle' and 'inner ear' and to restore the little muscles (ossicles) to their natural state."

The parcel also contained a form in which ten or a dozen trivial questions were propounded. These Mrs. A. answered to the best of her ability and having returned the filled-in document she without delay received the following letter:—

"—— House,
"January —th, 19—.

"DEAR MADAM,—I am in receipt of your favour of the —th inst. and after a careful diagnosis of your case am very pleased to be able to strongly recommend the system to you, fully believing that the result will be highly satisfactory. During my experience I have had several very similar cases to treat for in which I am pleased to say I was quite successful. Therefore I candidly advise you to send for the remedies enumerated upon the enclosed form, the use of which I feel sure would bring about a successful result in your case as in others of a like nature.

"Awaiting the favour of your reply,
"I am, dear Madam, yours faithfully,
"——"

The "remedies" were thus described:

"Pair of Drum Supports.
Prep. No. 1 Lotion.
Prep. No. 3 Powd.

Cost, including Treatment and directions, &c., £1 7s. 6d."

Having with great difficulty scraped together this, from her point of view, enormous sum Mrs. A despatched it to —— House, and in due course received the "remedies" which, it is hardly necessary to add, proved to be of no value whatever. The poor old woman's folly having come to the knowledge of a medical man in her neighbourhood he wrote to the "aural specialist" in the guise of a patient, detailing an impossible case of deafness, and in due course received duplicates of all the documents that had been sent to Mrs. A, including the above-quoted letter, the only difference being the substitution of "Sir" for "Madam." As, however, he failed to respond, in a few days a reminder reached him, and on his still keeping silence in a few days more he received an offer of the "remedies" for 15s. cash, the balance payable only on cure. This, too, he ignored, whereupon after another interval the "aural specialist" forwarded a final letter to say he was willing to send "the full treatment for the sum of 4s. 3d., cash with order."

ARE THERE PINS WITH REMOVEABLE POINTS?

To the Editors of THE LANCET.

SIRS,—I do not know whether pins are made with points that can be readily broken off after insertion, leaving a smooth rounded stump that will not prick or catch easily in clothing. A pin of this description would be a boon to surgical dressers and nurses.

I am, Sirs, yours faithfully,

Feb. 25th, 1901. BANDAGE

KIMBALL'S ANTI-RHEUMATIC RING.

A CORRESPONDENT recently wrote to us asking whether we knew anything of Kimball's anti-rheumatic ring, also inclosing one of Kimball's circulars. We learn from perusing the circular that rheumatism is caused by acidity of the blood, that this acid crystallises, forming crystals presenting all the appearance of pounded glass, which irritate the nerves. We then learn that electricity is the only remedy but that it must be properly applied and this in the most gentle manner possible but continuously. Herein lies the marvellous power of Kimball's anti-rheumatic ring.

> "Worn during the twenty-four hours of the day, as soon as it comes in contact with the heat and moisture of the finger, a gentle current of Electricity, *of exactly the right strength*, is directed, which will at once quicken the circulation; *then the blood itself, coursing more quickly through the veins, will dissolve the crystals*, stop the pain, and give tone to the entire system. By its quickening the circulation the blood is enabled to throw off impurities. Thus we have Electricity in its most effective form, and thus is *Rheumatism* cured.
>
> "The ring is not charged with Electricity; nor does it contain any of the metals that enter into the construction of the many so-called electric-belts, pads, insoles, &c., &c. There is nothing about it to be lost by use. The metals of which the Ring is composed, in connection with the heat and moisture of the finger on which it is worn, and the acid which the Ring draws from the system as long as any remains, form a combination which generates a mild current of Electricity."

We thought it would be interesting to see one of these rings, so we sent for one and submitted it for analysis in THE LANCET Laboratory. Our consulting chemist reports that the specific gravity of the metal was exactly that of iron. It dissolved completely in hydrochloric acid with evolution of hydrogen gas. The solution yielded a quantity of ferric oxide on precipitation exactly equivalent to the amount of the metal taken for the experiment. The ring was non-magnetic. We have therefore no hesitation in saying that the statements contained in Kimball's pamphlet are mostly false. He talks about the "metals of which the ring is composed"; it is composed of only one metal—namely, iron, with a trace of carbon—and is no more capable of setting up a current of electricity than is a bunch of keys in the pocket. Its value is at the outside 2*d.*, and Mr. Kimball charges 10*s.* It is quite true that a number of persons seem to have persuaded themselves that the ring does good. For instance, the first testimonial runs as follows:—

> The Rev. CANON WILBERFORCE, 20, Dean's-yard, Westminster Abbey, writes:—"I have recommended your Anti-Rheumatic Rings to many. I can only say that up to date I have not had a twinge of *Rheumatism* since I first put on your Ring. It may be coincidence, but it is a fact, nevertheless."

None of the testimonials is of the least value from a scientific point of view. Many people even now believe that wearing an eelskin garter cures cramp, and a medical man has told us of an acquaintance of his who tried the anti-rheumatic ring but deriving no good from it took to carrying a new potato in his pocket with beneficent results. We do not see why the authorities should not prosecute Kimball for obtaining money under false pretences, for his ring is not composed of metals but of one metal, and it does not generate electricity when on the finger, while even if it were to, the electricity would not pass through the body but be short-circuited.

"THE CASE OF MR. JOSEPH HENDERSON MARTIN."

To the Editors of THE LANCET.

SIRS,—I beg to acknowledge the two following subscriptions since my letter in THE LANCET of Feb. 23rd: M.R.C.S. Eng. (Bath), £2; Mr. J. F. Churchill (Chesham), £2 2*s.* Amount previously acknowledged in THE LANCET £48 5*s.*

I am, Sirs, yours faithfully,

Chester-le-street, Feb. 27th, 1901. H. LYON SMITH.

"MEDICAL SUPERSTITIONS."

To the Editors of THE LANCET.

SIRS,—An interesting chapter with regard to superstition is that relating to the examination of persons accused of sorcery or supposed to be possessed by a devil. Cicatrices, birth-marks, hysterical anæsthesia, dermographism, all had their significances. "M.B. Lond.," will find some interesting information and references in "Étude sur le Dermographisme ou Dermoneurose Toxivasomotrice," par Toussaint Barthélemy, Paris, 1893. I am, Sirs, yours faithfully,

X.

WANTED—A HOME.

To the Editors of THE LANCET.

SIRS,—Can you or any of your readers tell me of any institution where the following case can be admitted by payment? A girl, aged six, of apparently weak intellect from birth, and epileptic, who has been cured of fits by trephining and now needs mental training and management. I am, Sirs, yours faithfully,

Feb. 25th, 1901. F.R.C.S.

Anxious.—1. The Schott treatment of heart-disease carried out at Nauheim. In certain cases the treatment has been successful, but no one should undergo it without having a medical opinion that he or she is likely to be benefited by it. 2. Cocaine can be used in certain cases as an anæsthetic, but it will not take the place of chloroform in big operations. The question is one which may well be put by our correspondent to her medical attendant.

Hilly Country would like to hear the views of gentlemen who have tried motor-cars for general practice. Will they replace the horse? What type is reliable for regular work and as a hill-climber? Is there any reliable car burning ordinary paraffin instead of petrol?

G. V.—It is not possible to exclude from district councils all who might possibly, and perhaps indirectly, benefit by the decisions of the councils. It is inadvisable that the medical officer should be both master and servant.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (4th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M.).

TUESDAY (5th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), Guy's (1.30 P.M.), St. Thomas's (3.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

WEDNESDAY (6th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), Cancer (2 P.M.).

THURSDAY (7th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (2 P.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

FRIDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing-cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (2 P.M. and 6 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.).

SATURDAY (9th).—Royal Free (9 A.M. and 2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), University College (9.15 A.M.), Charing-cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), London Throat (2 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royat Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (4th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—9 P.M. Dr. J. Mitchell Bruce: Diseases and Disorders of the Heart and Arteries in Middle and Advanced Life. Lecture I.—Introduction. The Normal Heart at 40 and upwards. Influences that Threaten the Function and Structure of the Circulation at these ages. Strain. Alcohol. Tobacco. Free Living. Sedentary Habits. Uric Acid. Gout. Syphilis. Acute Febrile Processes. Nervous Influences. Bright's Disease. Emphysema. Complex causes. Family-Heart. Periodic Physiological Strain. Uterine Involution. The Grand Climacteric. Natural Dissolution of Advanced Life.

TUESDAY (5th).—PATHOLOGICAL SOCIETY OF LONDON (Jenner Institute of Preventive Medicine, Grosvenor-road, Chelsea).—8 P.M. Laboratory Meeting. Dr. G. Dean: Experiments on Immunity in Relation to the Pancreas and its Ferments.—Dr. A. Moore: The Immediate Diagnosis of Rabies.—Dr. Hélin and Mr. S. Rowland: On a Proteolytic Enzyme in the Spleen.—Dr. A. Harden: The Fermentation of Glucose by Sanarelli's Bacillus Icteroides.—Dr. R. T. Hewlett: (1) The Nature of the Indol Reacting Substance in Diphtheria Cultures; (2) The Identity of Achalme's Bacillus and the Bacillus Enteritidis Sporogenes (Klein).

THE BROWN ANIMAL SANATORY INSTITUTION (University of London, South Kensington, S.W.).—5 P.M. Dr. J. Rose Bradford (Professor-Superintendent): The Protozoa in their Relation to Disease, with especial reference to the so-called Tsetse-Fly Disease of South Africa.

WEDNESDAY (6th).—OBSTETRICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8 P.M. Specimens will be shown by Dr. Boxall, Dr. Lea, and Dr. W. Duncan. Dr. Horrocks (President): Inaugural Address.

THURSDAY (7th).—HARVEIAN SOCIETY OF LONDON (Stafford Rooms, Titchborne-street, Edgware-road, W.).—8.30 P.M. Dr. H. A. Caley: Some Clinical Features of Colitis.—Mr. J. Griffith: Gonorrhœal Iritis.

NORTH-EAST LONDON CLINICAL SOCIETY (Tottenham Hospital).—4 P.M. Clinical Cases.

FRIDAY (8th).—LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—5 P.M. Cases will be shown by Sir Felix Semon, Dr. de Havilland Hall, Dr. J. Horne, Dr. Pegler, Mr. Lake, Mr. Waggett, and Mr. Robinson.

CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M. Discussion on the Recent Epidemic of Typhoid Fever among the Troops in South Africa (opened by Dr. H. H. Tooth).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (4th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Prof. C. Addison: The Topographical Anatomy of the Abdominal Viscera in Man.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. R. Crocker: Consultation. (Skin.)

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Mr. Edwards: Malignant Disease of the Rectum.

TUESDAY (5th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Dr. J. F. J. Sykes: The Influence of the Dwelling upon Health. (Milroy Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. Burney Yeo: Consultation. (Medical.)

ROYAL INSTITUTION OF GREAT BRITAIN.—3 P.M. Dr. A. Macfadyen: The Cell as the Unit of Life.

WEDNESDAY (6th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Prof. C. Addison: The Topographical Anatomy of the Abdominal Viscera in Man.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—5 P.M. Prof. A. Carter: Clinical Lecture.

LONDON THROAT HOSPITAL (204, Great Portland-street, W.).—5 P.M. Dr. Stoker: Impaired Movements of the Vocal Cords. (Post-Graduate Course.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Latham: The Stages of Pulmonary Tuberculosis.

THURSDAY (7th).—ROYAL COLLEGE OF PHYSICIANS OF LONDON.—5 P.M. Dr. J. F. J. Sykes: The Influence of the Dwelling upon Health. (Milroy Lecture.)

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Hutchinson: Consultation. (Surgical.)

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL (Gray's Inn-road, W.C.).—8 P.M. Clinical Evening. Demonstration of Cases of Diseases of the Ear.

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Still: Nervous Phenomena associated with Rickets.

THE HOSPITAL FOR DISEASES OF THE SKIN (Stamford-street, Blackfriars).—3 P.M. Clinical Demonstration: Dr. P. S. Abraham.

WEST LONDON POST-GRADUATE COURSE (West London Hospital, W.).—5 P.M. Dr. Saunders: Arsenical Neuritis.

CHARING-CROSS HOSPITAL.—4 P.M. Dr. W. Hunter: Pathological Demonstration. (Post-Graduate Course.)

FRIDAY (8th).—ROYAL COLLEGE OF SURGEONS OF ENGLAND.—5 P.M. Prof. C. Addison: The Topographical Anatomy of the Abdominal Viscera in Man.

MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. StClair Thomson: Consultation. (Throat.)

EDITORIAL NOTICES.

It is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. II. of 1900, which was completed with the issue of Dec. 29th, and the Title-page to the Volume were given in THE LANCET of Jan. 5th.

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METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Feb. 28th, 1901.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
Feb. 22	30·23	NNE	0·06	65	46	32	40	40	Cloudy
,, 23	30·09	N.W.	...	66	47	40	40	42	Cloudy
,, 24	30·07	N.W.	...	63	47	41	43	46	Cloudy
,, 25	29·75	N.W.	...	61	50	40	40	41	Cloudy
,, 26	29·55	S.	...	56	46	41	42	44	Cloudy
,, 27	29·14	S.W.	0·20	58	50	42	45	46	Cloudy
,, 28	29·53	S.W.	0·02	61	49	43	42	43	Fine

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